



MT. NEBO WATER AGENCY

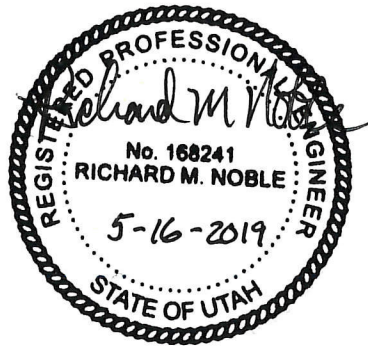
REGIONAL WATER SUPPLY STUDY

(HAL Project No.: (399.01.100))

**MAY 2019
ADOPTED JUNE 2019**

MT. NEBO WATER AGENCY REGIONAL WATER SUPPLY STUDY

(HAL Project No.: 399.01.100)



Richard Noble, P.E.
Principal, Project Engineer



May 2019

ACKNOWLEDGEMENTS

Successful completion of this regional water supply study was made possible by the cooperation and assistance of many individuals, including the Board and Technical Committee of Mt. Nebo Water Agency as shown below. We sincerely appreciate the cooperation and assistance provided by these individuals.

Mt. Nebo Water Agency Board Members

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Marty Larson

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Howard Chuntz

Santaquin City

Keith Broadhead

Spanish Fork City

Chad Argyle

Strawberry High Line Canal Company

Vacant

Utah County

Nathan Ivie

Mt. Nebo Water Agency Technical Committee

Chris Hansen, P.E., Chairman, Central Utah Water Conservancy District, CUPCA Program Manager

Ann Garner, Goshen Valley Local District

Norm Beagley, P.E., Santaquin City, City Engineer

Travis Jockumsen, P.E., Payson City, City Engineer

Richard Nielson, P.E., Utah County, County Engineer

Chris Thompson, P.E., Spanish Fork City, Public Works Director/City Engineer

Bruce Ward, P.E., Salem City, City Engineer

Strawberry High Line Canal Company

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GLOSSARY OF TECHNICAL TERMS

Agricultural Water: Water used to irrigate agricultural land that is not from a municipal water system.

Average Daily Flow: An average flow rate per day that would yield the average yearly demand.

Average Yearly Demand: The volume of water used during an entire year.

Build-out: When the development density reaches maximum allowed by planned development.

Consumptive Use: The portion of water withdrawn from a surface or groundwater source that is consumed by particular use(s) and does not return to a natural water source or another body of water (DWRi, 2017). Crop evapotranspiration is a type of consumptive use that is made up of plant transpiration and evaporation from the soil surface.

Demand: Required water flow rate or volume.

Depletion: Portion of water withdrawn from a surface or groundwater source that is consumed by particular use(s) and does not return to a natural water source or another body of water (DWRi, 2017).

Distribution System: The network of pipes, valves and appurtenances contained within a water system.

Diversion: Removal of water from its natural source; turning aside or alteration of the natural course of a flow of water, normally considered physically to leave the natural channel (DWRi, 2017).

Drinking Water: Water of sufficient quality for human consumption. Also referred to as Culinary or Potable water.

Dry Year Volume: Annual volume of water from a river or stream during a year of low flow where low flow is defined as the low flow of a 25-year recurrence interval or the low flow of record for the source when 25 years of records are not available

Equivalent Residential Connection: A measure used in comparing water demand from non-residential connections to residential connections.

Head: A measure of the pressure in a distribution system that is exerted by the water. Head represents the height of the free water surface (or pressure reduction valve setting) above any point in the hydraulic system.

Headloss: The amount of pressure lost in a distribution system under dynamic conditions due to the wall roughness and other characteristics of pipes in the system.

Irrigation Season: A period of time extending from April 1 through October 31.

Peak Day: The day(s) of the year in which a maximum amount of water is used in a 24-hour period.

Peak Day Demand: The average daily flow required to meet the needs imposed on a water system during the peak day(s) of the year.

Pressure Zone: The area within a distribution system in which water pressure is maintained within specified limits.

Service Area: Typically, the area within the boundaries of the entity or entities that participate in the ownership, planning, design, construction, operation and maintenance of a water system.

Storage Tank: A facility used to store, contain and protect drinking water until it is needed by the customers of a water system. Also referred to as a Storage Reservoir.

Transmission Line: A pipeline that transfers water from a source to a reservoir or from a reservoir to a distribution system.

Water Conservation: Planned management of water to prevent waste.

Water Right: The right to use water diverted at a specific location on a water source, and put it to recognized beneficial use at set locations (DWRi, 2017)

ABBREVIATIONS AND UNITS

ac	acre [area]
ac-ft	acre-foot (1 ac-ft = 325,851 gal) [volume]
AOG	Association of Governments, Mountainland
ASR	Aquifer Storage and Recovery
BLM	Bureau of Land Management
cfs	cubic feet per second [flow rate]
CRS	Caldwell Richards Sorensen
CRSP	Colorado River Storage Project
CUP	Central Utah Project
CUWCD	Central Utah Water Conservancy District
DDW	Utah Division of Drinking Water
DWR	Utah Division of Water Resources
DWRi	Utah Division of Water Rights
EDCUtah	Economic Development Corporation of Utah
EPA	U.S. Environmental Protection Agency
ERC	Equivalent Residential Connection
ft	foot [length]
gal	gallon [volume]
gpd	gallons per day [flow rate]
gpm	gallons per minute [flow rate]
gpcd	gallons per capita per day
GOMB	Utah Governor's Office of Management and Budget
GVL	Goshen Valley Local District
HAL	Hansen, Allen & Luce, Inc.
HDPE	high-density polyethylene
hp	horsepower [power]
in.	inch [length]
MG	million gallons [volume]
MGD	million gallons per day [flow rate]
MNWA	Mt. Nebo Water Agency
Reclamation	U.S. Bureau of Reclamation, USBR
SCADA	Supervisory Control and Data Acquisition
SCIC	Summit Creek Irrigation Company
SFN	Spanish Fork Canyon and Nephi Irrigation System
SHLCC	Strawberry High Line Canal Company
SUVMWA	South Utah Valley Municipal Water Association
SVP	Strawberry Valley Project
SWUA	Strawberry Water User's Association
UGS	Utah Geological Survey
ULS	Utah Lake Drainage Basin Water Delivery System
USBR	U.S. Bureau of Reclamation or Reclamation
USGS	U.S. Geological Survey
yr	year[time]

EXECUTIVE SUMMARY

PURPOSE OF STUDY

The purpose of this study is to help Mt. Nebo Water Agency (MNWA) achieve its goals of protecting and preserving water resources of its members by providing direction and help establishing priorities. The study provides guidance for decisions that will be made by water suppliers during the next several decades to maintain adequate water supply for the region as well as provide customers with the most reasonable costs and benefits. The planning horizon for the regional study is 2060. By this timeframe most of the cities are projected to achieve build-out or close to build-out conditions within their proposed future boundaries.

Study Area

The study area for the MNWA Regional Water Supply Study is in the southern portion of Utah County as shown in Figure ES-1.

Description of Subareas

For the purpose of this study, HAL divided the MNWA study area into thirteen subareas. These subarea boundaries are identified by color in the legend of Figure ES-2 with the exception of Utah Lake Subarea which is the part of Utah Lake shown within the study area boundary. Ten of the subareas are locations where significant population growth and development is expected to occur in the next fifty years: Benjamin/Lakeshore, Elk Ridge, Genola, Goshen, Goshen Valley/Elberta, Payson, Salem, Santaquin, Spanish Fork, and Woodland Hills. Most of the boundaries of these subareas are the boundaries of general plans provided by the city or town in the subareas that include a city or town. Utah Lake as well as the Wetlands Subarea and Public Lands/Other Subarea are considered mostly unpopulated and not expected to develop.

Online Interactive Map Availability

An interactive map file from the MNWA Regional Water Supply Study will be placed on the MNWA website and has been copied to a disk found on the back inside cover of this report. The file can be viewed through Google Earth.

POPULATION PROJECTIONS

Population projections are based on the 2010 United States Census. Long-term population projections for communities within the MNWA study area have been made in recent years for the Utah Governor's Office of Management and Budget (GOMB) and Envision Utah. GOMB population projections to the year 2060 for cities and towns in the MNWA study area are used in this study with the exception of the Goshen Valley Water District Subarea. Municipalities within the study area generally use GOMB population projections in their planning studies. Population projections prepared for Envision Utah were used for the Goshen Valley Water District subarea (Robert Charles Lesser & Co. Real Estate Advisors, 2014). The Envision Utah projections conservatively reflect long-range planning by the State of Utah of recommending Goshen Valley as a mega site for future large industrial development. Estimated existing population and projected future populations are summarized by subarea in Table ES-1.

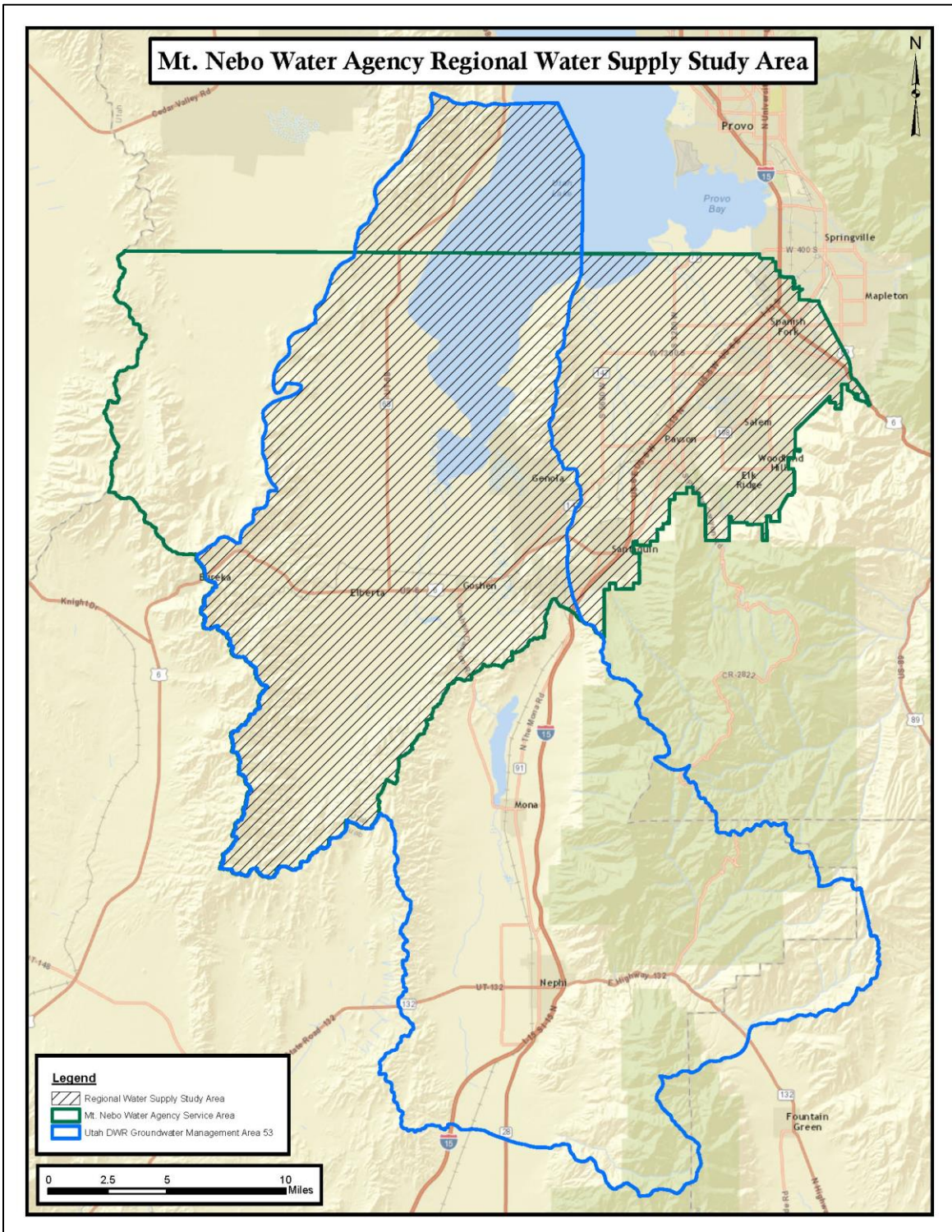
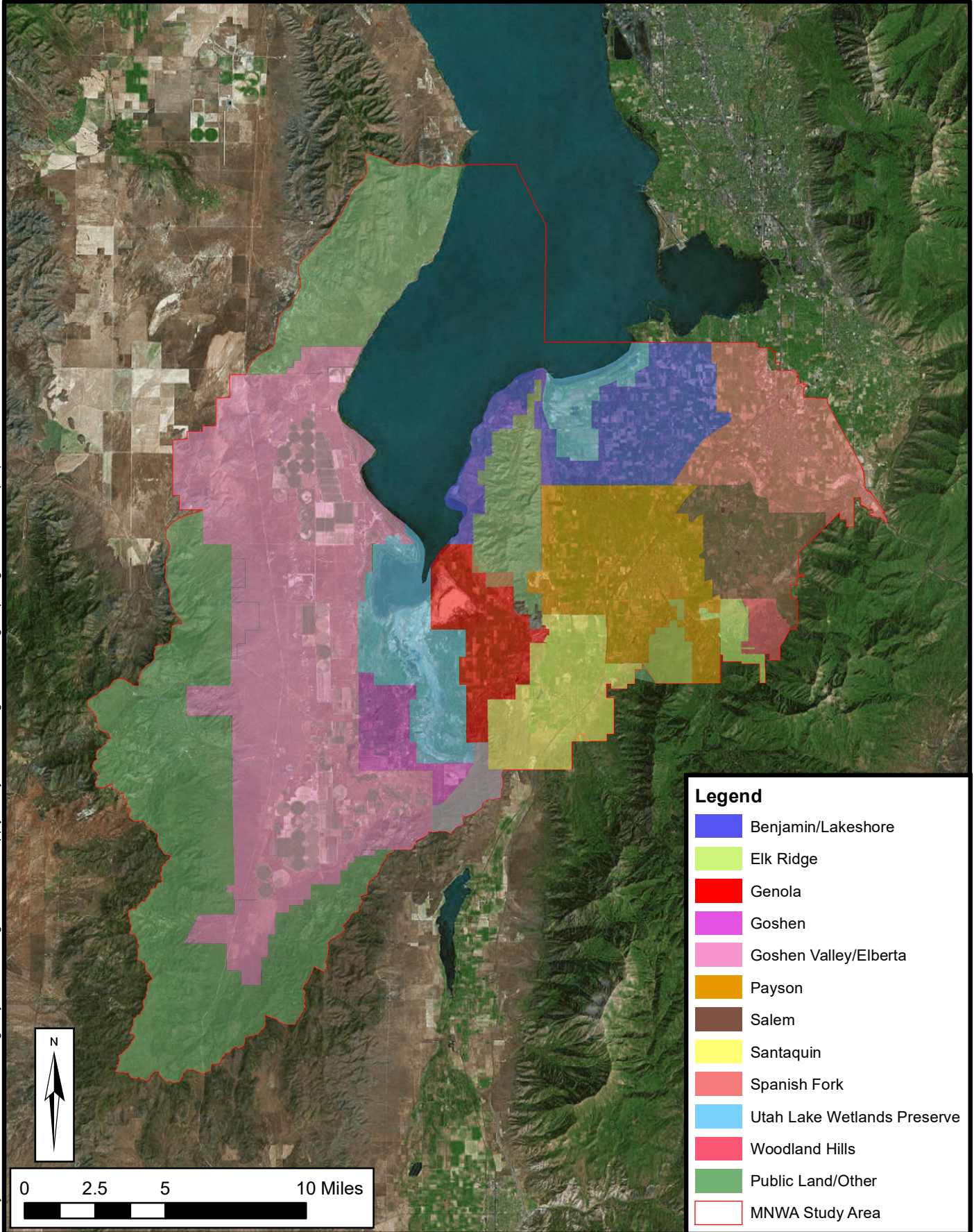


Figure ES-1: Mt. Nebo Water Agency Study Area Boundaries

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Legend

- Benjamin/Lakeshore
- Elk Ridge
- Genola
- Goshen
- Goshen Valley/Elberta
- Payson
- Salem
- Santaquin
- Spanish Fork
- Utah Lake Wetlands Preserve
- Woodland Hills
- Public Land/Other
- MNWA Study Area



**MNWA Regional Water Supply
Study Subareas**

**FIGURE
ES-2**

**Table ES-1
Population Projections**

Subarea	Population	
	Existing ¹	Future ²
Elk Ridge	3,287	7,902
Genola	1,727	10,800
Goshen Town	981	1,800
Goshen Valley/Elberta	275	25,628 ³
Payson	20,574	60,124
Salem	8,128	45,200
Santaquin	12,782	52,900
Spanish Fork	39,187	78,300
Benjamin/Lakeshore	2,573	18,025
Woodland Hills	1,564	5,300
Total MNWA Area	91,078	305,979

¹Based on Utah Census Bureau, Population Estimates 2011-2015 for cities and towns in the 2010 U.S., published in 2016 (U.S. Census Bureau, 2016) and GOMB growth rates applied for 2016 population estimate

²GOMB Municipal Population Projections 2010-2060 with 2012 Baseline Projections (GOMB, 2012). Elk Ridge and Payson City 2060 populations were adjusted downward to build-out population estimates provided by the city

³Wasatch Front 2015 Market-Driven Growth Scenario prepared by Envision Utah (Robert Charles Lesser & Co. Real Estate Advisors, 2014).

PROJECTED FUTURE LAND USE

The MNWA study area consists of about 292,765 acres. Of this area, a little more than half, approximately 161,960 acres, is within the ten subarea boundaries listed in Table ES-1. Within these ten subareas there are 55,647 acres of agricultural land that were irrigated in the year 2016 as shown in Table ES-2. Agricultural land is expected to decrease with population growth. City designation of preserved agricultural areas at build-out, was considered for future land use.

**Table ES-2
Irrigated Agricultural Land**

MNWA Regional Water Study Subareas	Subarea Area (acres)	Irrigated Agricultural Land ¹ (acres)
Benjamin/Lakeshore	16,716	10,610
Elk Ridge	2,106	0
Genola	9,473	4,266
Goshen	4,931	2,339
Goshen Valley/Elberta	70,074	13,370
Payson	19,987	10,180
Salem	8,956	3,528
Santaquin	12,081	3,497
Spanish Fork	15,987	6,948
Wetlands	16,782	909
Woodlands Hills	1,649	0
Public Lands/Other	76,555	0
Utah Lake	37,468	0
MNWA study area Total	292,765	55,647

¹Irrigated agricultural land was determined from the 2016 Water Related Land Use Map published by the Utah DWR (DWR, 2016).

WATER REQUIREMENTS SUMMARY

The total existing and future demand for water in the MNWA study area is summarized in Table ES-3 below. Existing and future municipal water requirements were calculated from ERCs considering actual demand from historical use data, population projections, and State requirements, and applying best practice engineering assumptions. Municipal demand includes indoor and outdoor watering through municipal water systems. Agricultural demand is water used to irrigate that is not from a municipal water system. The amount of agricultural water used in each subarea was calculated from the number of irrigated acres in each subarea as shown on the Water Related Land Use Map published annually by the Utah Division of Water Resources at DNR. The volume of water used to irrigate existing and future agricultural land was calculated by a rate based on an evaluation of cropping patterns and consumptive use within the study area. Demand for agricultural water is expected to decrease in future years for subareas where development of existing agricultural land is assumed to occur. Consequently, demand for municipal water is expected to increase in these areas.

**Table ES-3
Water Requirements Summary**

SUBAREA	DEMAND					
	Municipal ¹ (ac-ft)		Agricultural ² (ac-ft)		Total Municipal and Agricultural Demand (ac-ft)	
	Existing	Future	Existing	Future	Existing	Future
Benjamin/Lakeshore	562	3935	31,830	23,333	32,392	27,268
Elk Ridge	685	1651	0	0	685	1,651
Genola	389	2510	12,798	7,316	13,187	9,826
Goshen Town	292	535	7,017	6,404	7,309	6,939
Goshen Valley/Elberta ³	110	15,596	40,110	40,110	40,220	55,706
Payson ⁴	6,800	16,645	30,540	9,522	37,340	26,167
Salem	1774	9,867	10,584	2,399	12,358	12,266
Santaquin	2,684	11,316	10,491	2,637	13,175	13,953
Spanish Fork	9,805	19,114	20,844	4,057	30,649	23,171
Wetlands	0	0	2,727	2,727	2,727	2,727
Woodland Hills	342	1158	0	0	342	1,158
Total MNWA Area	23,443	82,327	166,941	98,506	190,384	180,833

¹ See Water Requirement spreadsheets for each subarea. The demand for outdoor use assumes conservation techniques including metering.

² Agricultural water is water used to irrigate that is not from a municipal water system. The agricultural demand is based on the irrigated acreage shown in the Water Related Land Use Map published annually by the Utah DWR and a water requirement of 3.0 ac-ft per acre.

³ Goshen Valley/Elberta future demand includes 10,000 ac-ft of future large industrial use.

⁴ Payson total municipal water requirements for existing and future demand include 1,681 ac-ft of demand for Nebo Power Plant.

EXISTING CAPACITY OF MUNICIPAL FACILITIES

Existing capacity is an annual volume of water that is available for use within a system based on the infrastructure in place and maintained to provide water. Table ES-4 is a summary of existing capacity of facilities owned and operated by municipalities within the MNWA study area.

Table ES-4
Existing Capacity of Municipal Water Systems

Subarea	Indoor Capacity (ac-ft)	Outdoor Capacity (ac-ft)	Total Capacity (ac-ft)
Benjamin/Lakeshore	0	0	0
Elk Ridge	2,036	0	2,036
Genola	1,031	0	1,031
Goshen Town	675	0	675
Goshen Valley/Elberta	1,500	0	1,500
Payson	5,646	14,364	20,010
Salem	5,414	11,136	16,550
Santaquin	5,101	1,476	6,577
Spanish Fork	13,050	10,040	23,090
Wetlands	0	0	0
Woodland Hills	1,021	0	1,021
Total MNWA Area	35,474	37,017	72,491

IRRIGATION COMPANY EXISTING FACILITIES

Irrigation companies that operate and have infrastructure within the MNWA study area are listed in Table ES-5. The table also includes a summary of surface diversion capacity. The canal diversion capacity listed for each company is the maximum amount of flow a canal company can carry from the point of diversion. Canal length listed includes the length in feet of the main channels of each canal company.

**Table ES-5
Irrigation Company Surface Diversion Capacity and Canal Length**

Name	Service Area (Acres)	Canal Diversion Capacity (cfs)	Canal Length (ft)
Current Creek Irrigation Company	6,274	45.00	34,411
Duck Creek Irrigation Company ¹	434	6.00	4,102
East Bench Canal Company	4,251	95.00	31,206
East Santaquin Irrigation Company ¹	459	4.00	4,339
East Warm Creek Irrigation and Canal Company ¹	210	2.55	1,985
Elberta Water Company ¹	29	0.55	276
Goshen Irrigation and Canal Company	5,470	19.00	53,417
Lake Shore Irrigation Company	4,540	60.00	19,632
Loafer Water Users Association ¹	38	0.05	361
New Northeast Spanish Fork Irrigation Company	236	4.00	19,441
Old Field Water Users Association ¹	432	2.00	48,812
Salem Irrigation and Canal Company ¹	2,465	55.00	33,214
Salem Pond Company ¹	968	7.00	9,153
Spanish Fork South Irrigation Company	6,667	75.00	49,612
Spanish Fork Southeast Irrigation Class A Shares (river) ¹	947	15.00	22,883
Spanish Fork West Field Irrigation Company	6,628	82.00	62,688
Strawberry High Line Canal Company	19,940	300.00	163,428
Strawberry Water Users Association	-	550.00	17,424
Summit Creek Irrigation & Canal Company	2,153	30.00	50,925
Warm Springs Irrigation and Power Company ¹	1,437	9.65	13,588
Wash Creek Irrigation Company	375	2.23	12,390
Total	63,953	1,114	653,287

¹Estimated Canal Length

WATER RIGHTS

A list of existing water rights that divert water or put water to use within the boundaries of the MNWA study area was compiled for this study. The main objective of inventorying water rights was to determine an annual volume of the rights available within the MNWA study area. Table ES-6 is a summary by subarea of the water rights listed.

Table ES-6
Water Right Summary Based on Ownership Type
(Private, Municipal and Irrigation Company Water Rights)

Subarea	Privately Owned Water Rights¹ (ac-ft)	Municipal Water Rights¹ (ac-ft)	Irrigation Company Water Rights¹ (ac-ft)	Total Water Rights¹ (ac-ft)
Benjamin/Lakeshore	5,459	0	9,715	15,174
Elk Ridge	30	1,417	157	1,605
Genola	1,604	994	2,166	4,764
Goshen	1,447	572	4,858	6,877
Goshen Valley/Elberta	47,936	2,724	9,287	59,948
Payson	20,321	7,338	8,359	36,018
Salem	3,608	5,032	7,056	15,696
Santaquin	10,130	5,994	9,946	26,070
Spanish Fork	5,824	23,602	16,779	46,205
Wetlands	2,133	0	4,490	6,623
Woodland Hills	91	733	0	824
Total MNWA Area	98,583	48,407	72,813	219,803

¹ Due to the scale and broad objectives of this study, all listed water right annual volumes are approximate. Individual water right value requires specific evaluation to determine historical diversion and depletion.

The MNWA study area is within DWRi water right areas 51 and 53 which are administratively closed to new water rights (DWRi, 2017). All sources of water are fully appropriated and, in some locations, may be over allocated. As stated on the DWRi website for these areas, “new diversions and uses of water are established by the modification of existing water rights.”

Each water right will require a specific evaluation to determine historical diversion and depletion. Annual volume listed for water rights does not directly correlate to water available for new diversions since any change in the water right is subject to evaluation by the State Engineer and limitations based on depletion, prior use, duties, and/or legal issues could result in a right with less water available for a new use. Due to the scale and broad objectives of this study, all water right annual volumes listed in this report should be considered approximate and appropriate for the purposes of this study.

WATER SUPPLY

Rivers and Streams

Table ES-7 is a summary of the flow of rivers and streams within the MNWA study area. The Spanish Fork River is the main source of perennial stream flow entering the MNWA study area. Although their flow is much lower, Peteetneet Creek, Summit Creek, and Currant Creek are also important water sources for the area.

**Table ES-7
Annual and Irrigation Season Volume Contributed by Streams**

Surface Water Source	25-Year Low (year or years)	Annual Average Volume (ac-ft)	Irrigation Season Average Volume (ac-ft)	Dry Year Volume (ac-ft)	Irrigation Season Dry Year Volume (ac-ft)
Spanish Fork River ¹	1934,1961, 1977, 2002	105,263	74,673	39,933	17,277
Summit Creek	1961	8,524	7,292	3,544	2,500
Peteetneet Creek	1961	9,089	7,567	3,769	2,674
Currant Creek (Mona Station)	2015	17,785	9,454	2,390	771
Beer Creek	N/A	-	-	-	-
Kimball Creek	N/A	70	50	17	7
Spring Creek	N/A	-	-	-	-

¹Spanish Fork River flows do not include imported Strawberry water.

Groundwater

Although the average annual groundwater recharge is about 93,000 ac-ft, this study assumes that the amount of groundwater that is available to be pumped from wells is about 45,000 ac-ft per year as shown in Table ES-8. Pumping greater than 45,000 ac-ft per year or more than the available groundwater for well pumping as shown in Table ES-8 for each subarea, would result in significant impacts to groundwater levels.

**Table ES-8
Available Groundwater for Well Pumping by MNWA Subarea**

MNWA Subareas	Average Annual Groundwater Recharge (ac-ft/yr)	Available Groundwater for Well Pumping (ac-ft/yr)
Benjamin/Lakeshore	4,700	2,350
Elk Ridge	6,290	3,150
Genola	3,970	1,990
Goshen	2,080	1,040
Goshen Valley/Elberta	15,900 ¹	7,950 ¹
Payson	14,980	7,490
Salem	12,360	6,180
Santaquin	15,540	7,770
Spanish Fork	10,390	5,200
Wetlands	2,380	-- ²
Woodland Hills	4,090	2,050
TOTAL:	92,680¹	45,170¹

¹ Includes subsurface inflow from Cedar Valley (UGS, 2017)

² No pumping from wetlands.

Springs

Several cities within the MNWA study area obtain a significant portion of their drinking water supply from mountain springs. These springs produce an average annual volume of over 19,000 ac-ft as shown in Table ES-9.

**Table ES-9
Supply from Mountain Springs**

Subarea	Spring Name	Average Annual Flow Capacity (gpm)	Average Annual Volume (ac-ft)	Dry Year Flow Capacity (gpm)	Dry Year Annual Volume (ac-ft)
Goshen	Ercanbrack Spring	200	320	200	320
Payson	Canyon Springs	1,540	2,480	700	1,130
Payson	Dixon Spring	60	90	50	80
Payson	Picayune Spring	60	100	10	20
Salem	Water Canyon Upper Spring	180	280	50	80
Salem	Water Canyon Springs Lower Spring	600	970	200	320
Santaquin	Gravity Springs	900	1,450	900	1,450
Santaquin	Spring #1	80	130	80	130
Spanish Fork	Crab Creek Springs	1,250	2,020	900	1,450
Spanish Fork	Cold Springs	6,500	8,830	6,000	8,000
Spanish Fork	Malcolm Springs	2,300	2,800	2,300	2,800
Total		13,670	19,470	11,390	15,780

PROJECTED WATER SURPLUSES AND SHORTAGES

An evaluation of demand and supply is useful in addressing current requirements and in planning for future water supply needs. Table ES-10 provides a summary of municipal demand, agricultural demand, dry year water supply, and average year water supply for each subarea. As shown in the table, the current total water demand within the MNWA study area is approximately 190,000 ac-ft per year. This demand includes 23,000 ac-ft of municipal demand and 167,000 ac-ft of agricultural demand. The future (2060) total water demand is reduced to about 181,000 ac-ft. This reduced demand is due to projected future land use changes of agricultural land being developed for residential, commercial, and industrial use. The water requirement per gross acre of urbanized land is less than the water requirement for irrigated agriculture. Present and future municipal water demands are based on the assumption that the State's goal of reducing per capital water use by 25 percent has been achieved. If this water conservation goal is not achieved, the municipal demand would be higher.

The table shows an average year total water supply of about 223,000 ac-ft per year. This total includes surface water from rivers and streams, springs, and available groundwater. As discussed earlier, the available groundwater for withdrawal from wells is assumed to be 50 percent of the average annual aquifer recharge or about 45,000 ac-ft per year. The present level of groundwater pumping is about half of that amount which suggests that there is an additional 22,500 acre-feet of available groundwater that could be developed.

**Table ES-10
Demand and Supply Summary**

Subarea	Municipal Demand ¹ (ac-ft)		Agricultural Demand ² (ac-ft)		Total Municipal and Agricultural Demand (ac-ft)		Dry Year Supply ⁵ (ac-ft)	Average Year Supply ⁵ (ac-ft)
	Present	Future	Present	Future	Present	Future	Future	Future
Benjamin/Lakeshore	562	3,935	31,830	23,333	32,392	27,268	12,961	23,612
Elk Ridge	685	1,651	0	0	685	1,651	3,929	3,929
Genola	389	2,510	12,798	7,316	13,187	9,826	12,571	17,908
Goshen	292	535	7,017	6,404	7,309	6,939	1,969	4,139
Goshen Valley/ Elberta ³	110	15,596	40,110	40,110	40,220	55,706	8,535	15,091
Payson ⁴	6,800	16,645	30,540	9,522	37,340	26,167	35,610	56,352
Salem	1,774	9,867	10,584	2,399	12,358	12,266	14,003	20,597
Santaquin	2,684	11,316	10,491	2,637	13,175	13,953	18,625	26,060
Spanish Fork	9,805	19,114	20,844	4,057	30,649	23,171	35,490	50,311
Wetlands	0	0	2,727	2,727	2,727	2,727	812	2,724
Woodland Hills	342	1,158	0	0	342	1,158	2,460	2,460
Total	23,443	82,327	166,941	98,506	190,384	180,833	146,966	223,182

¹The demand for outdoor use assumes conservation techniques including metering.

²Agricultural water is water used to irrigate that is not from a municipal water system. The agricultural demand is based on the irrigated acreage shown in the Water Related Land Use Map published annually by the Utah DWR and a water requirement of 3.0 ac-ft per acre.

³Goshen Valley/Elberta future demand includes 10,000 ac-ft of future large industrial use. Goshen Valley groundwater supply includes subsurface inflow from Cedar Valley.

⁴Payson outdoor municipal water requirement includes 1,681 ac-ft of demand for Nebo Power Plant.

⁵Supply includes surface water supply during the irrigation season (Apr.-Oct.), springs, available groundwater for well pumping, Strawberry Valley Project Water, and Central Utah Project water allotments.

In dry years the total water supply is diminished to about 147,000 ac-ft or about 65 percent of the average year amount. This decrease is due primarily to a reduction of surface flows in rivers and streams.

A comparison of demand with available water supply shows that some subareas enjoy a surplus water supply in average and dry years while other subareas have shortages in average and dry years. Table ES-11 shows water surpluses and shortages of each subarea in average and dry years. Overall, in average years there is a surplus of nearly 33,000 ac-ft based on the current level of development and a shortage of about 43,000 ac-ft in dry years. With future development the average year surplus is about 42,000 ac-ft and the dry year shortage is about 34,000 ac-ft.

**Table ES-11
Water Supply¹ Surplus and Shortage in Dry and Average Years**

Subarea	Dry Year Surplus or Shortage (+/-) ² (ac-ft)		Average Year Surplus or Shortage (+/-) ² (ac-ft)	
	Present	Future	Present	Future
Benjamin/Lakeshore	-19,431	-14,307	-8,780	-3,656
Elk Ridge	3,244	2,278	3,244	2,278
Genola	-616	2,745	4,721	8,082
Goshen	-5340	-4970	-3170	-2,800
Goshen Valley/Elberta	-31,685	-47,171	-25,130	-40,616
Payson	-1,730	9,442	19,012	30,184
Salem	1,644	1,737	8,238	8,331
Santaquin	5,450	4,672	12,885	12,107
Spanish Fork	4,841	12,319	19,662	27,140
Wetlands	-1,915	-1,915	-3	-3
Woodland Hills	2,118	1,302	2,118	1,302
Total MNWA Area	-43,418	-33,866	32,797	42,349

¹ The supply includes the available groundwater for well pumping, irrigation season river volume, and mountain spring volume.

² A surplus water supply is represented by a positive number (+) and a shortage is represented by a negative number (-).

Table ES-12 shows a comparison of indoor municipal demand to mountain spring and groundwater supply in a dry and average year, without imported water. Mountain springs and groundwater are the sources of supply for drinking water within the MNWA study area. As shown in the table there is sufficient spring water and groundwater supply to meet existing and future indoor water demands.

**Table ES-12
Spring Water and Groundwater Supply Surplus and Shortage
Compared to Indoor Municipal Demand**

Subarea	Dry Year Surplus or Shortage (+/-) ¹ (ac-ft)		Average Year Surplus or Shortage (+/-) ¹ (ac-ft)	
	Present	Future	Present	Future
Benjamin/Lakeshore	2,110	668	2,110	668
Elk Ridge	2,857	2,446	2,857	2,446
Genola	1,824	949	1,824	949
Goshen	1235	1,131	1,235	1,131
Goshen Valley/Elberta	7,903	5,558	7,903	5,558
Payson	6,085	1,016	7,525	2,456
Salem	5,822	2,362	6,672	3,212
Santaquin	8,017	3,831	8,017	3,831
Spanish Fork	12,772	8,102	14,172	9,502
Wetlands	0	0	0	0
Woodland Hills	1,904	1,555	1,904	1,555
Total MNWA Area	50,529	27,618	54,219	31,308

¹ A surplus water supply is represented by a positive number (+) and a shortage is represented by a negative number (-).

Another useful comparison is an evaluation of the municipal water systems capacities against present and future water demands. In examining municipal water systems, it is important to note that Elk Ridge, Goshen, and Woodland Hills have only a drinking water system and are not expected to add a secondary system in the future. In these areas, the drinking water system serves both indoor and outdoor municipal demands.

Table ES-13 shows capacity surpluses and shortages for each subarea. The Benjamin/Lakeshore subarea does not currently have municipal infrastructure within its boundaries. In this subarea indoor water demands are met from individual domestic wells at each residence. This pattern is expected to continue into the future. In the future, additional indoor capacity will be required to meet the indoor municipal demands for Genola, Payson, Santaquin, and Woodland Hills.

In comparing outdoor municipal demand to outdoor municipal capacity, Genola, and Goshen Valley/Elberta show existing small shortages for capacity of 220 and 60 ac-ft, respectively. In the Benjamin/Lakeshore subarea, watering of landscapes around homes is also provided by domestic wells. Future shortages in outdoor municipal capacity ranging from 1,470 to 13,204 ac-ft are shown for the same subareas with shortages in Santaquin as well. These numbers suggest that additional capacity will need to be developed to meet future outdoor municipal demands.

**Table ES-13
Municipal Capacity Compared to Municipal Demand**

Subarea	Indoor Capacity Surplus or Shortage (+/-) (ac-ft)		Outdoor Capacity ¹ Surplus or Shortage (+/-) (ac-ft)		Total Capacity Surplus or Shortage (+/-) (ac-ft)	
	Existing	Future	Existing	Future	Existing	Future
Benjamin/Lakeshore	-240	-1,682	-322	-2,253	-1,922	-3,935
Elk Ridge ²	1,351	385	0	0	1,351	385
Genola	865	-10	-223	-1,469	642	-1,099
Goshen ²	383	140	0	0	383	140
Goshen Valley/Elberta ³	1,453	-892	-63	-13,204	1,390	-14,096
Payson ⁴	3,011	-2,058	10,199	5,423	13,210	3,365
Salem	4,656	1,196	10,120	5,487	14,776	6,683
Santaquin	3,768	-418	125	-4,321	3,893	-4,739
Spanish Fork	8,372	3,702	4,913	274	13,285	3,976
Wetlands	N/A	N/A	N/A	N/A	N/A	N/A
Woodland Hills ²	679	-137	0	0	679	-137
Total MNWA Area	24,298	226	24,750	-10,062	49,687	-9,456

¹The demand for outdoor use assumes conservation techniques including metering.

²It is assumed that Elk Ridge, Goshen, and Woodland Hills will continue to meet indoor and outdoor water demands with their drinking water system in the future.

³Goshen Valley/Elberta future demand includes 10,000 ac-ft of future large industrial use.

⁴Payson existing and future demand includes 1,681 ac-ft from the Nebo Power Plant.

CONCEPTUAL PLANS FOR ADDRESSING WATER SUPPLY NEEDS

Conceptual plans have been developed to address the water-related needs of communities, industry, and agriculture within the MNWA study area. These needs are based on communications with local stakeholders, working with the MNWA Technical Committee, and on analysis of information collected and summarized in this report. These conceptual plans are just that - conceptual. Additional studies are warranted to determine the feasibility of each conceptual plan.

Non-Structural Measures

Water Conservation – The State of Utah has established a goal to reduce the year 2000 per capita water demand from public community systems by at least 25 percent by 2025. Specifically, the average statewide 2000 per capita demand will need to decline from 295 gallons per capita per day (gpcd) to a sustained 220 gpcd or less (DWR, 2014). For a given system, per capita water use includes all uses such as residential indoor, outdoor, commercial, and industrial. The water demand projections presented in this study are within the State’s goal. Therefore, in order to ensure an adequate water supply for the future, each public water system within the MNWA study area must regularly monitor its water use and update its water conservation plan. It is imperative that per capita water use is reduced to meet the goal. Otherwise, water supplies will run short and the area will suffer water shortages.

Water Rights Acquisition and Management – Information gathered in this study shows that sufficient water rights currently exist to provide for the present and future needs of the MNWA study area. As growth occurs, however, about 27,000 ac-ft of water rights will need to be reallocated from their previous uses to municipal uses. Each city will need to have an aggressive program for acquiring water supply. Such a program could include water rights exaction on new development and/or an on-going program of purchasing water rights. The cost of water right purchases could potentially be offset by impact fees. Also, cities should regularly monitor water right applications and file protests as needed to ensure that proposed water right changes do not adversely affect the potential for future growth.

Expanded role of MNWA – MNWA members have discussed the need for a district or agency to help cities and irrigation companies manage their water and water rights and to pool resources. The MNWA could potentially fill this role. Specific functions that the agency could provide include the following.

- Facilitate pooling of resources to avoid or defer high-cost capital projects
- Help manage water rights by monitoring water right change applications and filing protests as needed to protect interests of MNWA members
- Help acquire water rights and hold ownership in behalf of cities
- Help manage surface water and groundwater resources to foster better conjunctive use.
 - Use surface water first to prevent it from going to Utah Lake where it is lost for use by MNWA members
 - Use surplus surface water in groundwater recharge projects to improve aquifer levels
 - Preserve groundwater for drinking water and as an emergency secondary water supply
- Facilitate and assist members with groundwater recharge projects

-
- Help provide emergency redundancy for members to mitigate risk
 - Facilitate agreements with agricultural interests for emergency water supplies during extreme drought conditions

Structural Measures

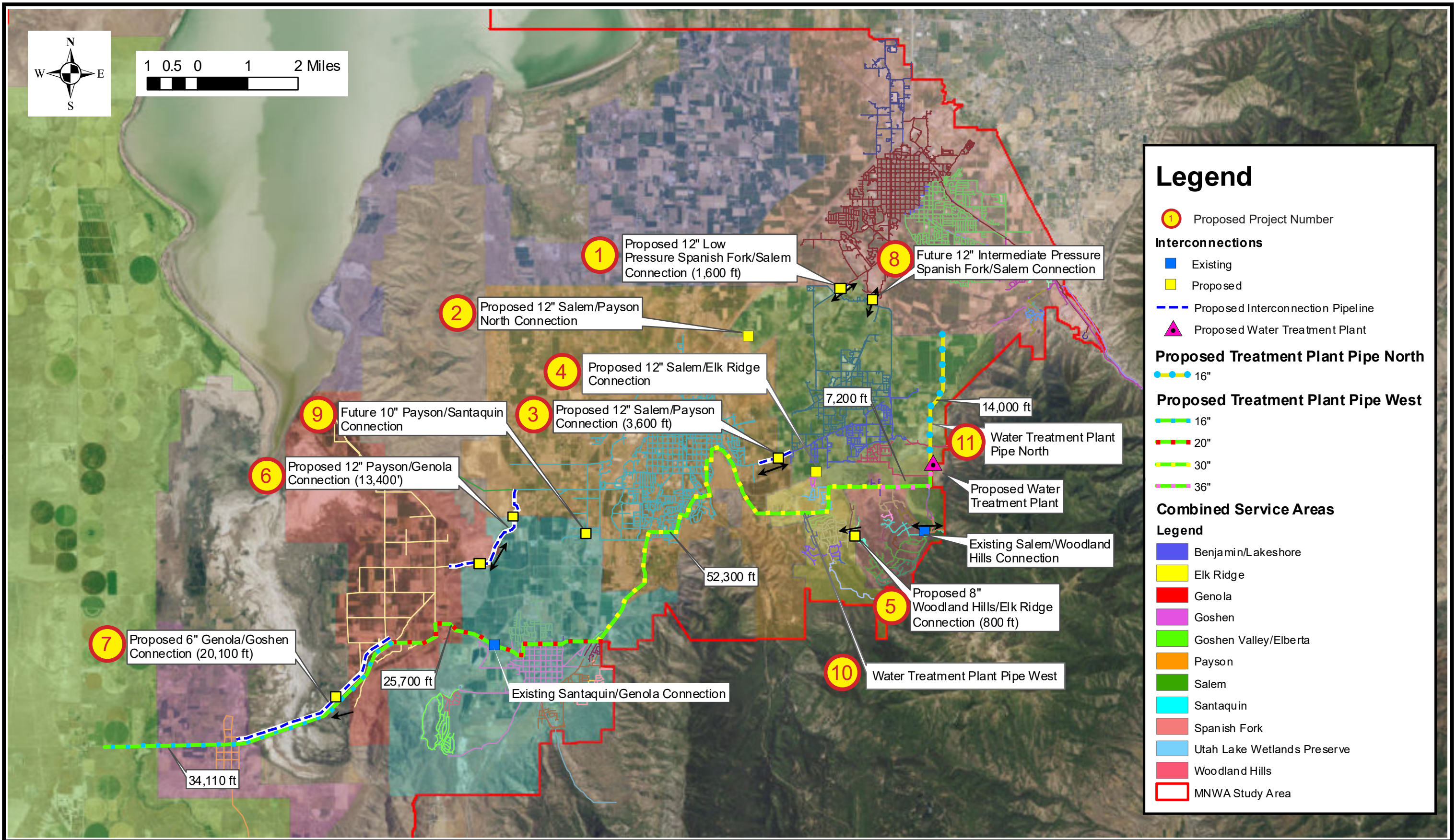
Interconnections between Cities – To help minimize the risk of disruption to service caused by well or pump failures, transmission line breaks, or extraordinary maintenance, interconnections are proposed between the cities' water systems. These interconnections could also be used to allow cities to share water sources, particularly water associated with SUVMWA- or MNWA-owned water rights. Additionally, these interconnections could enhance conjunctive use of surface water and groundwater by allowing surface water to be used before groundwater, when available. Proposed interconnection projects are shown in Figure ES-3 as projects 1 through 9.

New Drinking Water Wells – Genola, Payson, Santaquin, and Woodland Hills will require additional source capacity to be developed for their drinking water systems. One alternative means of developing this capacity is to drill new wells. For Payson, the additional 2,058 ac-ft of source capacity could be provided by a new 18-inch-diameter well. For Santaquin, the 354 ac-ft of needed source capacity could be provided by a new 10-inch-diameter well. For Woodland Hills, 137 ac-ft of new source capacity could be provided by a new 8-inch-diameter well.

CUWCD Water Treatment Plant – CUWCD is considering construction of a water treatment plant within the MNWA study area. This treatment plant could provide additional drinking water source capacity. CUWCD has acquired a site in the southeast portion of Salem for the facility. This site is shown in Figure ES-3. This location will allow raw water to be delivered through the Spanish Fork-Santaquin Pipeline using the available pressure in the pipeline. The elevation of the treatment plant site also would allow delivery of treated water to MNWA cities by gravity pressure without pumping. CUWCD would construct, own, and operate the treatment plant. Capital costs and annual operation and maintenance costs would be repaid through water purchase contracts. Due to the high cost of treating surface water, MNWA cities would likely maximize their use of groundwater before contracting for treated surface water.

Water Treatment Plant Pipelines – Two pipelines are proposed to deliver treated drinking water from the CUWCD water treatment plant. These pipelines could also facilitate the cities' ability to share other drinking water sources. The Water Treatment Plant Pipe West will extend from the treatment plant in Salem westward through Salem, Woodland Hills, Elk Ridge, Payson, Santaquin, Genola, and Goshen, ending in the Elberta area at the Goshen Valley Local District. The pipeline will include 7,200 linear-feet of 36-inch-diameter PVC pipe, 52,300 linear-feet of 30-inch-diameter PVC pipe, 25,700 linear ft of 20-inch-diameter PVC pipe and 34,220 linear ft of 16-inch-diameter PVC pipe.

The Water Treatment Plant Pipeline North will include 14,000 linear ft of 16-inch-diameter PVC pipe and also begin at the water treatment plant and extend northward from Salem to Spanish Fork. Both the west and north pipeline alignments are shown in Figure ES-3 as projects 10 and 11.



Spanish Fork–Santaquin Pipeline – The Spanish Fork-Santaquin Pipeline is a proposed federal facility that is being constructed by CUWCD as part of the ULS System and will deliver untreated water from Strawberry Reservoir to the MNWA study area. The Spanish Fork-Santaquin Pipeline will connect to the Spanish Fork Canyon Pipeline at U.S. Highway 89 about 0.8 miles northwest of the Highway 6/Highway 89 junction and mostly run adjacent to existing roads and adjacent to the Union Pacific Railroad right-of-way southwest to Santaquin. The steel pipeline will be 60 inches in diameter for 17.5 miles, with a capacity of 120 cfs. (CUWCD, 2004)

Cities within the MNWA study area will receive water from the Spanish Fork-Santaquin Pipeline through nine pipeline turnouts. The pipeline alignment and turnout locations are shown in Figure ES-4. Each city will be responsible to construct any facilities that are needed to make the connection from their secondary water distribution systems to the Spanish Fork-Santaquin Pipeline.

Goshen Valley Raw Water Pipeline – The Goshen Valley Raw Water Pipeline is proposed to convey untreated water to the GVLD. The pipeline would be designed to carry water from the Spanish Fork-Santaquin Pipeline and the High Line Canal as shown in Figure ES-5. The pipeline would begin at the Santaquin West Turnout of the Spanish Fork-Santaquin Pipeline and continue in a northwesterly direction for about a mile to the terminus of High Line Canal Lateral 31 adjacent to U.S. Highway 6 in Genola. From that location the pipeline would extend about 7.9 miles in a southwesterly/westerly direction to the GVLD near Elberta. The pipeline would have a capacity of 38 cfs. The pipeline would include 5,450 linear feet of welded steel pipe and 41,750 linear feet of high-density polyethylene (HDPE) pipe. A pressure reducing station would be provided at the junction with High Line Canal Lateral 31 so that water could be delivered from the Spanish Fork-Santaquin Pipeline and the High Line Canal simultaneously.

High Line Canal Piping Project – The Strawberry High Line Canal was constructed as a feature of the Strawberry Valley Project. While title to the canal right-of-way is held by the United States, the canal is operated and maintained by the SHLCC. According to River Commissioner reports, an average of 51,400 ac-ft of water per year was delivered through the High Line Canal from 2000-2016. This amount includes an interim supply of 5,900 ac-ft of CUP water.

High Line Canal New Wells – SHLCC holds title for 13,000 ac-ft of water rights based on return flow of Strawberry Valley Project water. SHLCC is working on plans to develop new wells within the MNWA study area and file water right change applications with the State Engineer that would move these return flow rights into the proposed wells. Specific locations for the wells have not yet been identified. Water from the wells would be made available to SHLCC shareholders, cities, and other entities within the MNWA study area. SHLCC also has a water right and pumps water from Spring Creek.

Secondary Water Meters – The water requirements calculated for this study are based on the assumption that water meters would be installed on all secondary water connections and that customers would be billed based on metered water usage. Studies have demonstrated that secondary water systems that have installed meters have seen as much as a 40 percent decrease in water use (DNR). Therefore, water meters are proposed to be installed on all municipal secondary water connections in Payson, Salem, and Santaquin. Spanish Fork City already has water meters on its secondary water connections.

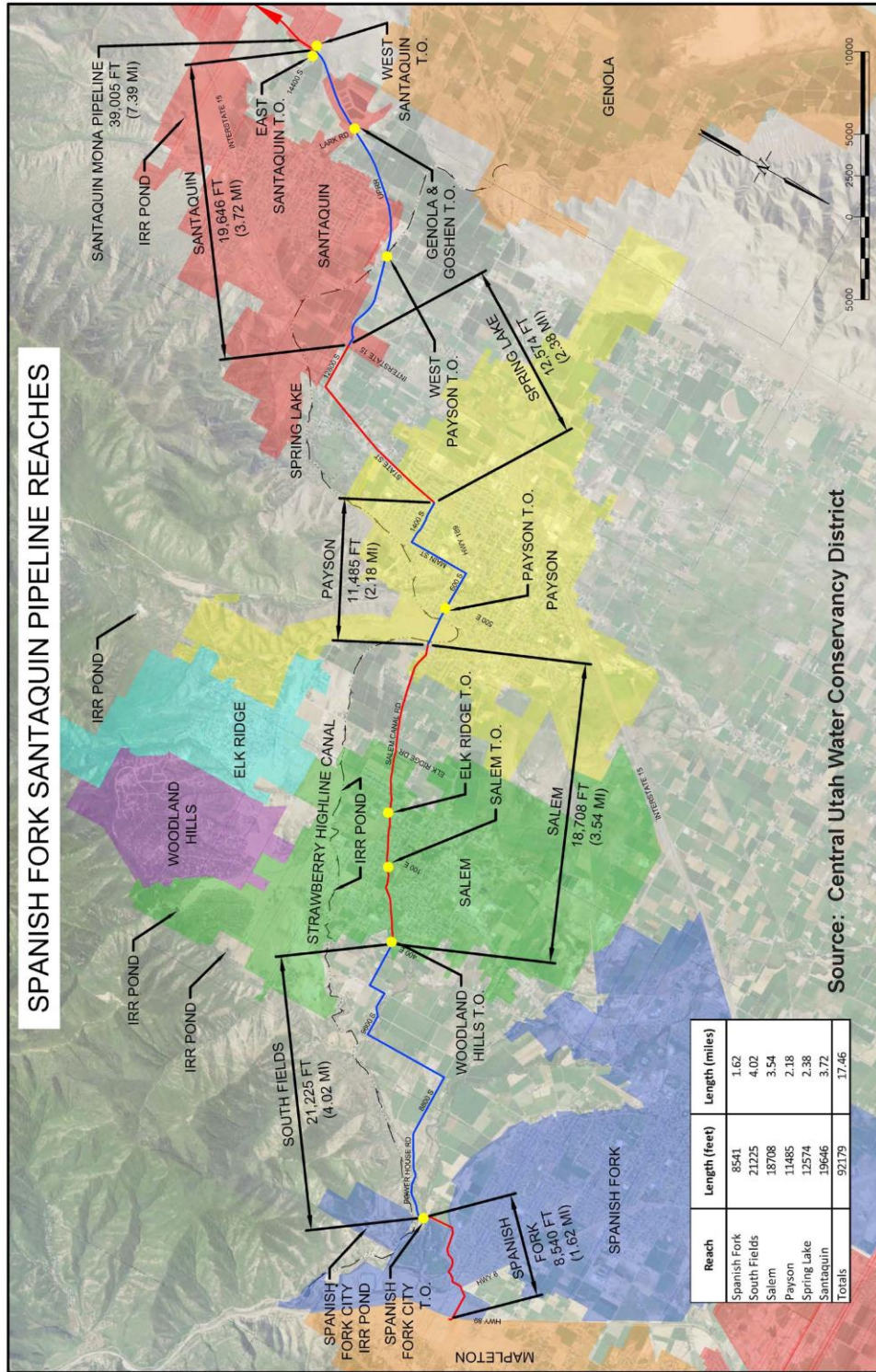
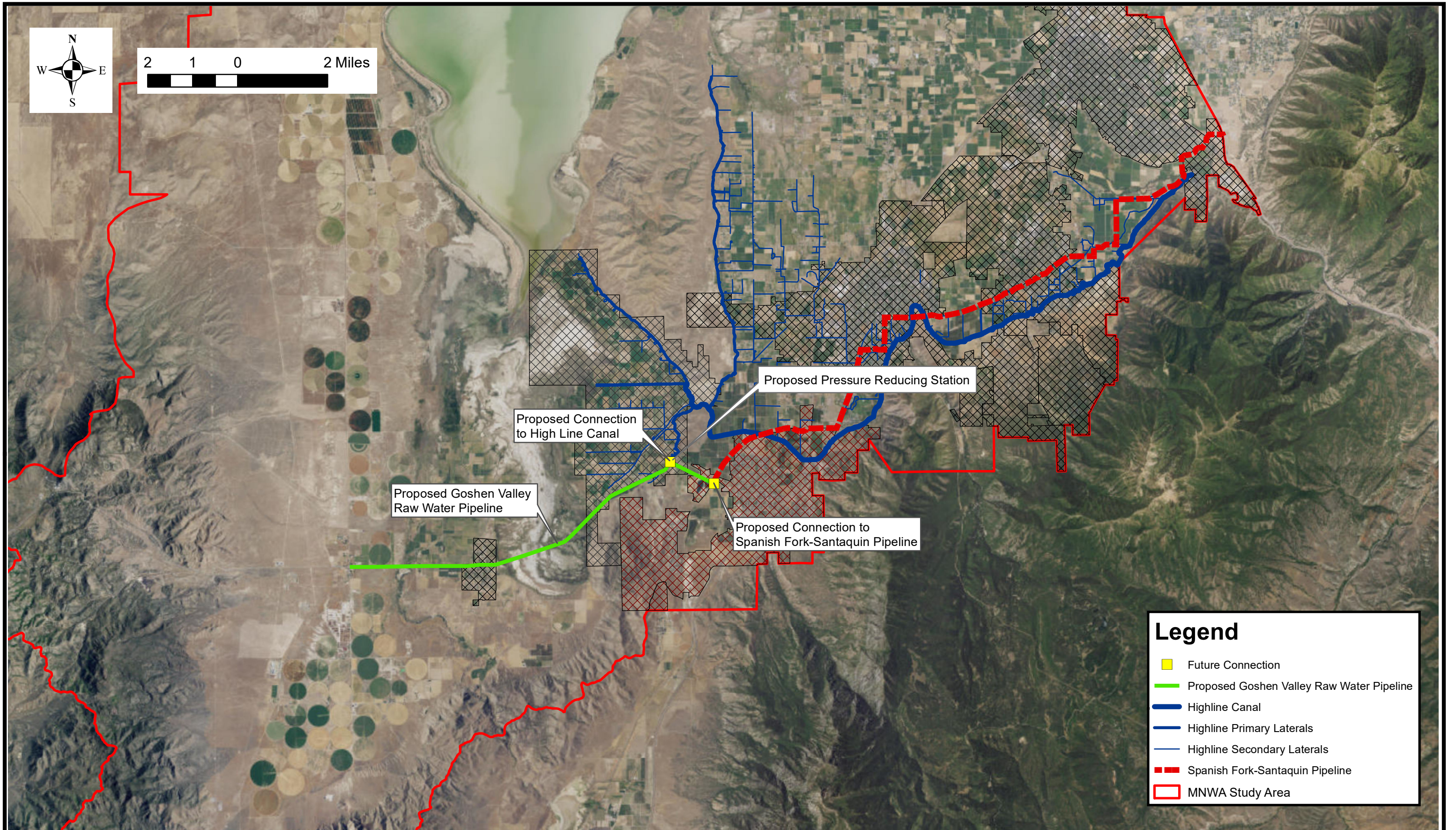
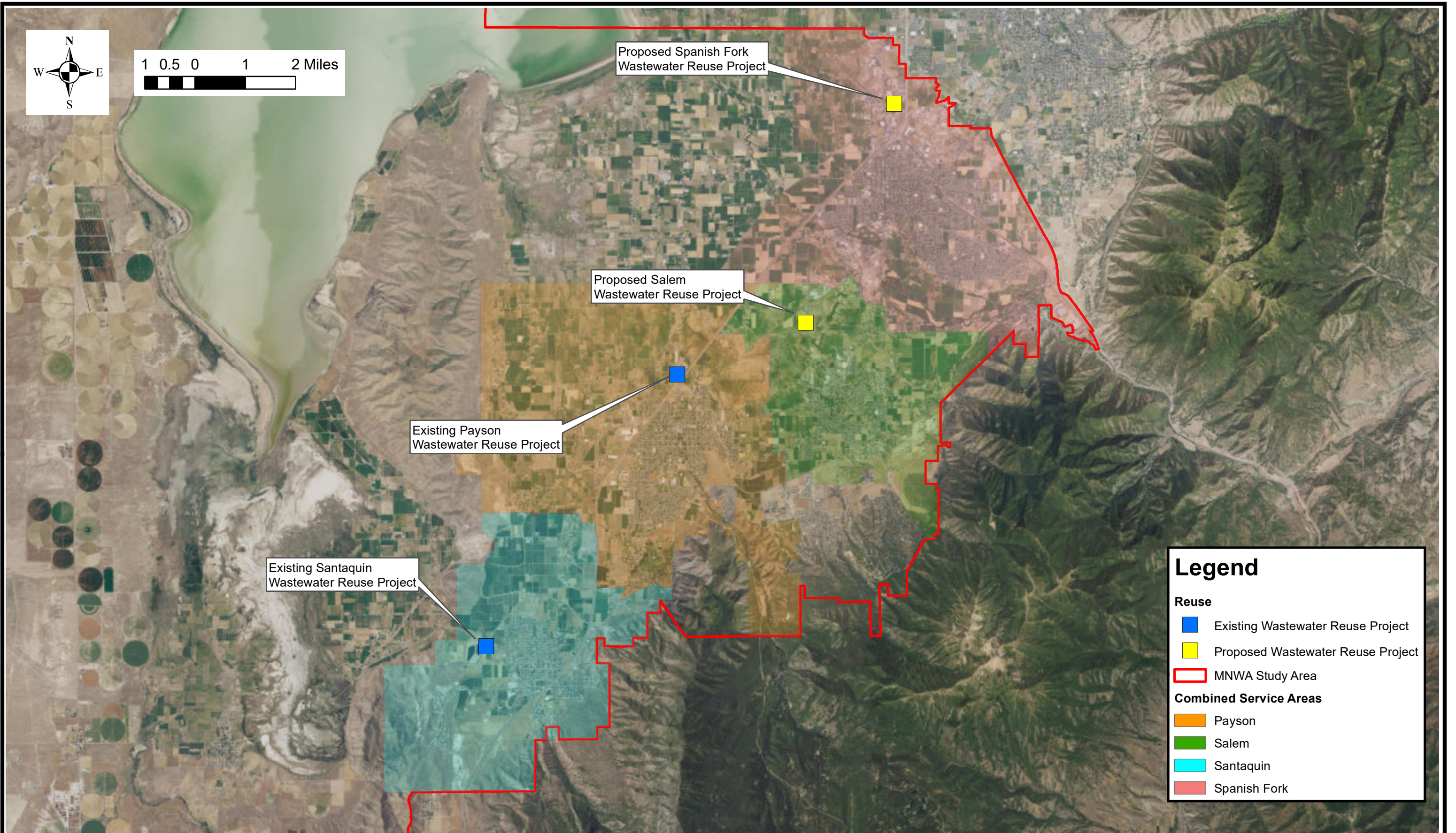
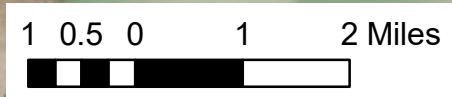
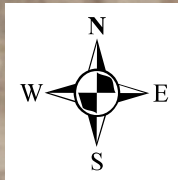


Figure ES-4: Spanish Fork-Santaquin Pipeline Reaches and Turnout Locations



Wastewater Reuse Facilities – Wastewater reuse represents a significant potential to provide additional water supply to the MNWA study area. Four wastewater treatment facilities currently exist within the study area. These plants include Payson, Salem, Santaquin, and Spanish Fork. The locations of these plants are shown in Figure ES-6.



Legend

Reuse

- Existing Wastewater Reuse Project
- Proposed Wastewater Reuse Project

MNWA Study Area

- MNWA Study Area

Combined Service Areas

- Payson
- Salem
- Santaquin
- Spanish Fork

Aquifer Recharge and Recovery Facilities – In order to reduce impacts from increased groundwater pumping in the future and to augment the available groundwater for well pumping, MNWA could pursue an Aquifer Storage and Recovery (ASR) program. ASR consists of the artificial recharge of the aquifer system through either surface spreading infiltration basins or direct injection wells and the subsequent discharge of water from the aquifer through increased pumping from existing wells or additional pumping from new wells. Surface spreading basins are the preferred method of recharge if surface water is used for artificial recharge. Otherwise, the water would have to be treated to drinking water standards before direct injection through a well. Typically recovery wells are located downgradient from the point of artificial recharge. Surface spreading basins are proposed to be located in the primary recharge areas near the mountain front at the approximate locations shown on Figure ES-7.

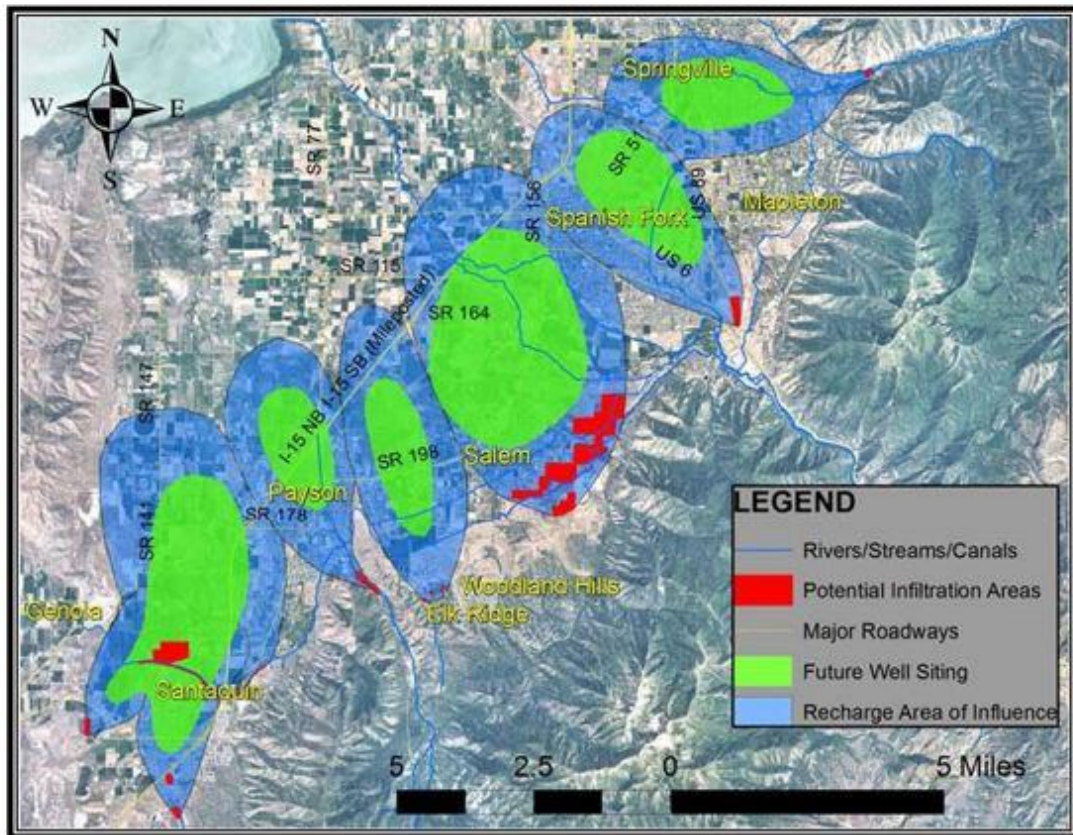


Figure ES-7 Potential Groundwater Recharge Areas (Source: Caldwell, Richards, Sorensen, *Southern Utah Valley Municipal Water Association Groundwater Recharge Feasibility Study*, 2013.)

Conceptual-Level Cost Estimates

Conceptual-level cost estimates have been prepared for construction of the facilities described previously. These estimates are based on concepts only and should not be used for budgetary purposes. More detailed designs should be developed to determine the technical and financial feasibility of concepts described in this study. Table ES-14 summarizes conceptual-level cost estimates for the proposed facilities.

**Table ES-14
Conceptual-Level Cost Estimates**

Project	Estimated Cost	Notes
Drinking Water Facilities		
Project 1 – Spanish Fork/Salem Low Pressure Zone Connection	\$560,000	Breakdown of cost estimate provided in Appendix L.
Project 2 – Salem/Payson North Connection	\$230,000	Breakdown of cost estimate provided in Appendix L.
Project 3 – Salem/Payson Connection	\$1,060,000	Breakdown of cost estimate provided in Appendix L.
Project 4 – Salem/Elk Ridge Connection	\$230,000	Breakdown of cost estimate provided in Appendix L.
Project 5 – Woodland Hills/Elk ridge Connection	\$294,000	Breakdown of cost estimate provided in Appendix L.
Project 6 – Payson/Genola Connection	\$3,520,000	Breakdown of cost estimate provided in Appendix L.
Project 7 – Genola/Goshen Connection	\$4,160,000	Breakdown of cost estimate provided in Appendix L.
Project 8 – Spanish Fork/Salem Intermediate Pressure Zone Connection	\$280,000	Breakdown of cost estimate provided in Appendix L.
Project 9 – Payson/Santaquin Connection	\$270,000	Breakdown of cost estimate provided in Appendix L.
Payson Drinking Water Well	\$520,000	Cost based on new 18" well.
Santaquin Drinking Water Well	\$290,000	Cost based on new 10" well.
Woodland Hills Drinking Water Well	\$230,000	Cost based on new 8" well.
CUWCD Water Treatment Plant	\$100,000,000	Cost provided by CUWCD.
Project 10 – Water Treatment Plant Pipe West	\$45,640,000	Breakdown of cost estimate provided in Appendix L.
Project 11 – Water Treatment Plant North	\$5,400,000	Breakdown of cost estimate provided in Appendix L.
Irrigation and Untreated Water Facilities		
Spanish Fork–Santaquin Pipeline	\$140,000,000	Cost provided by CUWCD.
Goshen Valley Raw Water Pipeline	\$36,600,000	Breakdown of cost estimate provided in Appendix L.
High Line Canal Piping Project	\$120,000,000	Cost provided by Strawberry High Line Canal Company.
High Line Canal New Wells	\$3,000,000	Cost based on 6 wells at \$500,000 per well.
Payson Secondary Water Meters	\$5,519,000	Cost based on 5,519 connections at \$1,000 per connection.
Salem Secondary Water Meters	\$2,257,000	Cost based on 2,257 connections at \$1,000 per connection.
Wastewater Reuse Facilities		
Salem New Wastewater Treatment Plant	\$14,000,000	Cost provided by Salem City.
Spanish Fork Wastewater Treatment Plant	\$8,700,000	Breakdown of cost estimate provided in

Project	Estimated Cost	Notes
Upgrades		Appendix L.
Aquifer Recharge and Recovery Facilities		
Recharge Basins and Monitoring Wells	\$3,790,000	Based on CRS Groundwater Recharge Feasibility Study costs of \$1,190,000 for recharge basins and \$2,400,000 for monitoring wells indexed from 2013 to 2017 using RSMeans indexes.
TOTAL	\$493,770,000	

Implementation Schedule

The schedule for implementing conceptual plans discussed in this chapter should generally be based on the timing of the needs that each plan addresses. Many of the needs currently exist which means that plans should be implemented as soon as it is reasonably practical. Other needs occur in conjunction with population growth and are based on population projections. Table ES-15 provides a summarized implementation schedule for conceptual plans.

**Table ES-15
Implementation Schedule for Conceptual Plans**

Project	Implementation Schedule
Non-Structural Measures	
Water Conservation	Should be an on-going practice. However, next updates of water conservation plans should develop strategies to reduce water consumption to State-recommended levels by 2025.
Water Rights Acquisition and Management	Should be an on-going practice.
Expanded Role of MNWA	Discussions between MNWA and cities should begin as soon as possible.
Drinking Water Facilities	
Project 1 – Spanish Fork/Salem Low Pressure Zone Connection	As soon as practical.
Project 2 – Salem/Payson North Connection	As soon as practical.
Project 3 – Salem/Payson Connection	As soon as practical.
Project 4 – Salem/Elk Ridge Connection	As soon as practical.
Project 5 – Woodland Hills/Elk ridge Connection	As soon as practical.
Project 6 – Payson/Genola Connection	As soon as practical.
Project 7 – Genola/Goshen Connection	As soon as practical. Due to cost and limited population this project could be a low priority.
Project 8 – Spanish Fork/Salem Intermediate Pressure Zone Connection	When future development brings water systems in proximity to each other.
Project 9 – Payson/Santaquin Connection	When future development brings water systems in proximity to each other.
Payson Drinking Water Well	When population reaches 44,300.
Santaquin Drinking Water Well	When population reaches 49,700
Woodland Hills Drinking Water Well	When population reaches 4,700.
CUWCD Water Treatment Plant	After completion of Spanish Fork-Santaquin Pipeline.
Project 10 – Water Treatment Plant Pipe West	In conjunction with CUWCD Water Treatment Plant construction. Last 6.5 miles dependent on large industrial

Project	Implementation Schedule
	development at GVLD.
Project 11 – Water Treatment Plant North	In conjunction with CUWCD Water Treatment Plant construction.
Irrigation and Untreated Water Facilities	
Spanish Fork–Santaquin Pipeline	Project is under construction. Projected completion is scheduled for 2024 but is dependent on availability of federal funding.
Goshen Valley Raw Water Pipeline	Dependent on large industrial development at GVLD, but not before completion of Spanish Fork-Santaquin Pipeline.
High Line Canal Piping Project	As soon as practical. SHLCC is currently working on a funding plan.
High Line Canal New Wells	As soon as practical.
Payson Secondary Water Meters	As soon as practical.
Salem Secondary Water Meters	As soon as practical.
Wastewater Reuse Facilities	
Salem New Wastewater Treatment Plant	Scheduled for 2020 completion.
Spanish Fork Wastewater Treatment Plant Upgrades	As soon as practical.
Aquifer Recharge and Recovery Facilities	
Recharge Basins and Monitoring Wells	Phased implementation based on population growth (CRS, 2013). Phase I when study area population reaches 107,000. Phase II when population reaches 176,000. Phase III when population reaches 205,000. Phase IV when population reaches 240,000.

CHAPTER 1 – INTRODUCTION

PURPOSE OF STUDY

The purpose of this study is to help Mt. Nebo Water Agency (MNWA) achieve its goals of protecting and preserving water resources of its members by providing direction and help establishing priorities. The study provides guidance for decisions that will be made by water suppliers during the next several decades to maintain adequate water supply for the region as well as provide customers with the most reasonable costs and benefits. The planning horizon for the regional study is 2060. By this timeframe most of the cities are projected to achieve build-out or close to build-out conditions within their proposed future boundaries.

MT. NEBO WATER AGENCY

MNWA was organized to protect and preserve precious water resources for the benefit of present and future agricultural, residential, municipal, and industrial users, and to plan for water supplies needed to sustain population growth and economic expansion within the MNWA boundaries.

MNWA Purposes

According to the Interlocal Agreement the purposes of the Mt. Nebo Water Agency are to:

1. Develop, protect, and manage water resources to maximize the beneficial use of the available supplies in satisfying the demands of agricultural and a growing municipal population.
2. Plan, design, develop, construct, own and/or sponsor projects and related facilities to provide an affordable and sufficient supply of water;
3. Operate, administer, manage, repair and replace the same, as necessary;
4. Facilitate the transfer and distribution of agricultural water and municipal water to its members and to non-member contracting entities for delivery to their respective customers, shareholders, and contracting parties;
5. Prepare, update, and implement plans for agricultural preservation, water conservation, and infrastructure for development, conveyance, distribution, treatment of water, aquifer storage and recovery, and managing return flows; and
6. Enjoy economies of scale and other benefits made possible through the joint and cooperative action of the members;

MNWA Members

MNWA's members consist of Central Utah Water Conservancy District (CUWCD), Genola Town, Goshen Valley Local District, Payson City, Salem City, Santaquin City, and Spanish Fork City. Strawberry High Line Canal Company (SHLCC) is also represented through a contract with Utah County.

STUDY AREA

The study area for the MNWA Regional Water Supply Study is in the southern portion of Utah County. The extent of the study area was outlined in the MNWA Regional Water Supply Study Phase 1 Report (Horrocks Engineers, 2016).

As shown in Figure 1-1, the hatched area is the study area. It includes all of the MNWA Service Area which is outlined in green in Figure 1-1 except the area in the northwest that is west of the Utah Division of Water Rights (DWRi) Groundwater Management Area 53 boundary. In addition to the MNWA Service Area, the MNWA study area includes the northern boundary of the Utah DWRi Groundwater Management Area 53.

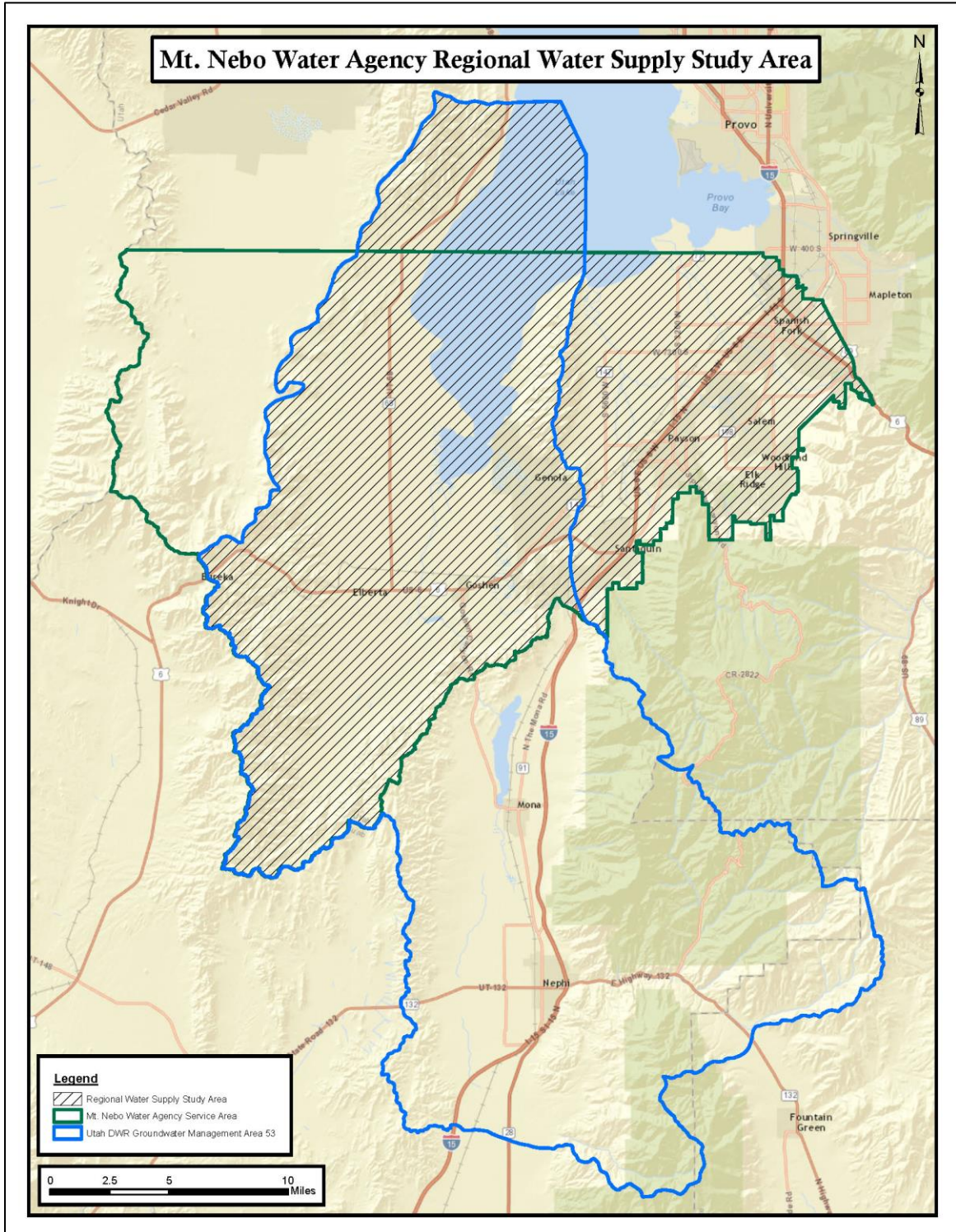


Figure 1-1: Mt. Nebo Water Agency Study Area Boundaries

Description of Subareas

For the purpose of this study, HAL divided the MNWA study area into thirteen subareas. These subarea boundaries are identified by color in the legend of Figure 1-2 with the exception of Utah Lake Subarea which is the part of Utah Lake shown within the study area boundary. Ten of the subareas are locations where significant population growth and development is expected to occur in the next fifty years: Benjamin/Lakeshore, Elk Ridge, Genola, Goshen, Goshen Valley/Elberta, Payson, Salem, Santaquin, Spanish Fork, and Woodland Hills. Most of the boundaries of these subareas are the boundaries of general plans provided by the city or town in the subareas that include a city or town. Utah Lake as well as the Wetlands Subarea and Public Lands/Other Subarea are considered mostly unpopulated and not expected to develop.

Future boundaries of the unincorporated areas on some of the city general plans overlapped. Boundaries for these subareas were adjusted so that the unincorporated land was in one or the other subarea, not both. Subarea boundaries shown in Figure 1-2 are only for the purpose of this study. Goshen Town did not have any printed plans for annexing area outside of their current town boundaries. The Goshen Subarea includes Goshen Town and surrounding land, especially south of the Town that was not included in other city or town general plans or other subareas.

The black hatching on Figure 1-3 shows the boundaries of the main existing public water supplier service area in each subarea. For most subareas, this is the same boundary as the city or town boundaries recorded with Utah County.

Two sparsely populated subareas, Benjamin/Lakeshore and Goshen Valley/Elberta do not include a recognized city or town but their boundaries include unincorporated rural communities on land outside of the general plans of cities or towns. A specific area plan was completed for the Goshen Valley area and the Goshen Valley/Elberta Subarea includes this boundary as well as land bordering this specific area plan that was inside the study area and not part of other general plans or subareas (Fregonese Associates, 2016). Goshen Valley Local District (GVL D) is established as a public water supplier with the DWRi and provides water to Elberta Water Company but does not currently serve a population within the GVL D boundary.

Subareas within the study area that are not expected to have population or development in the next fifty years include Utah Lake, Wetlands, and Public Land/Other Subareas. In some cases, city general plan boundaries used to determine subarea boundaries were superseded by unpopulated subarea boundaries if land was shown overlapping into Utah Lake, Utah Lake Wetlands Preserve, or U.S. Forest Service land boundaries.

METHODOLOGY

A critical part of this study included communication with the MNWA Board of Directors, the MNWA Technical Committee, each member organization of MNWA, individually and combined, and other public water suppliers in the study area. Hansen, Allen & Luce, Inc. (HAL) organized and facilitated meetings to allow the needs and concerns of each member organization to be heard and understood as well as to collect information and data. Monthly organized meetings were held with the technical committee to discuss findings and analysis.

INTERACTIVE MAP AVAILABILITY

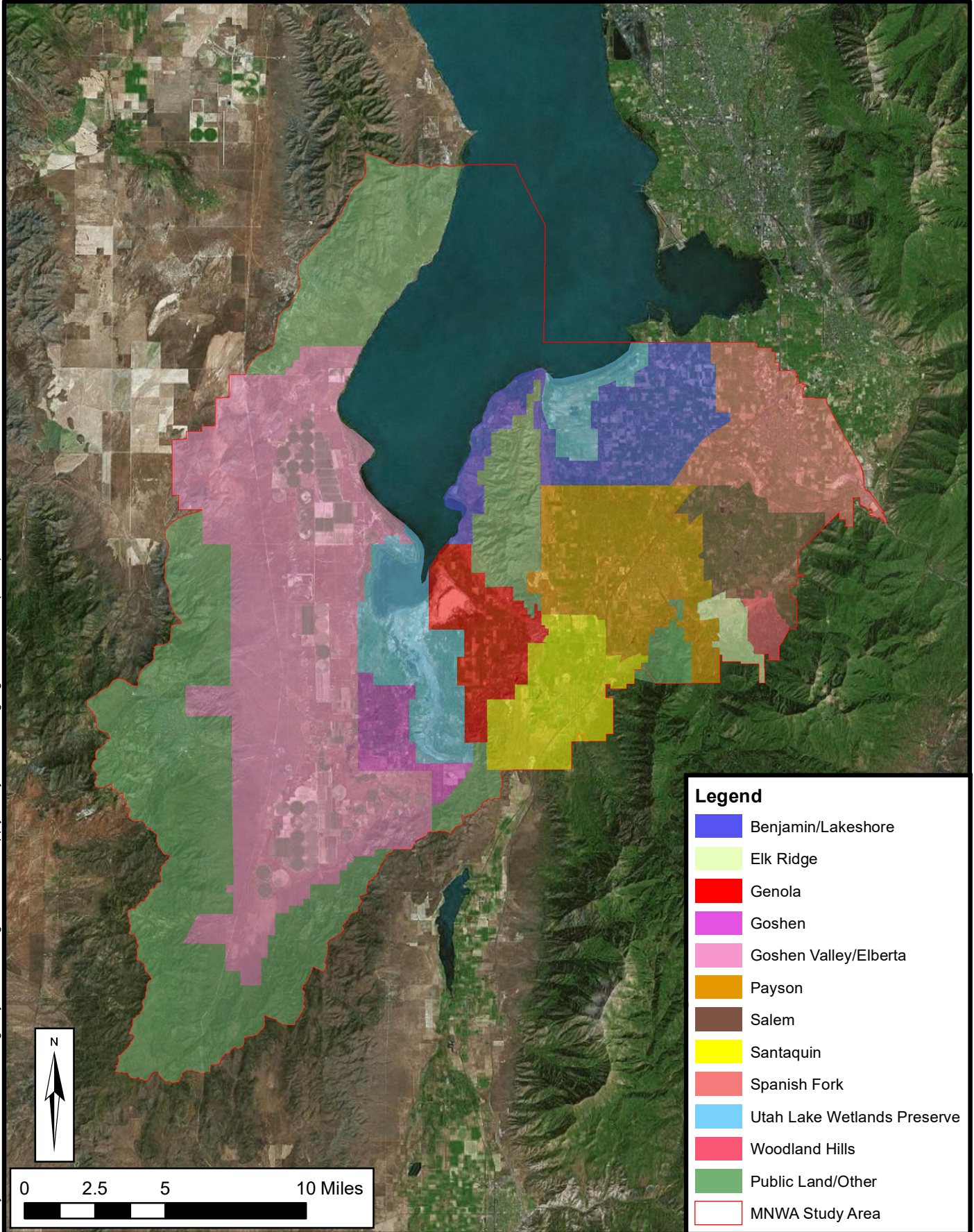
An interactive map file from the MNWA Regional Water Supply Study will be placed on the MNWA website and has been copied to a disk found on the back inside cover of this report. The file can be viewed through Google Earth. With Google Earth installed on a user's computer, upon clicking the map file, Google Earth will open and zoom to the location of the MNWA study area. When selected, map layers can be viewed overlaying the MNWA study area and clicking on various locations or symbols on the map will bring-up corresponding data tables.

Map layers are organized into six main folders with any subfolders shown in parenthesis:

1. Supply (Dry Year Supply, Average Year Supply)
2. Demand (Existing Demand, Future Demand)
3. Municipal Water Service
4. Water Rights
5. Hydrology
6. Canal Companies

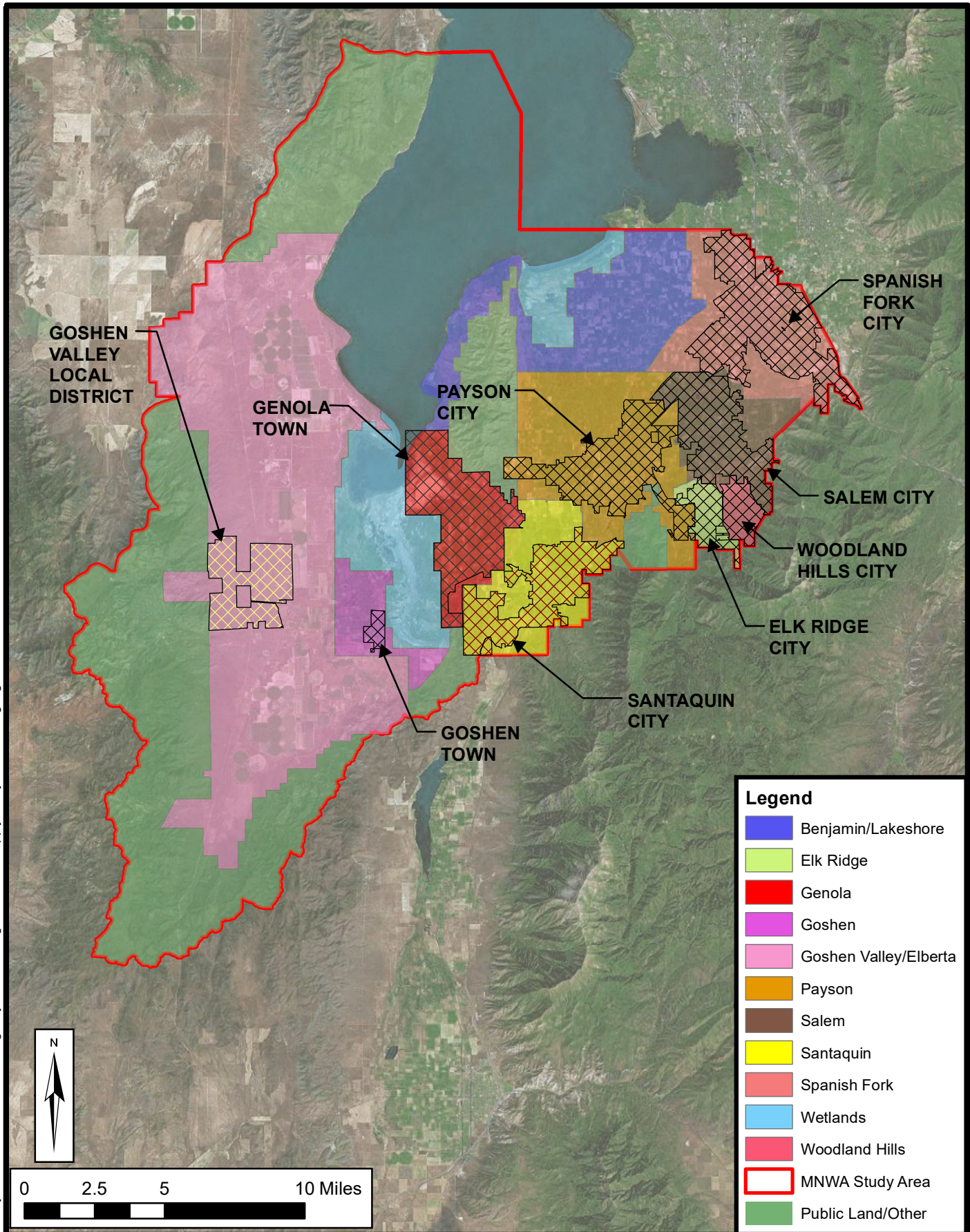
Only one map layer should be open at a time when using the map interactively to open data tables. The interactive maps allow the viewer to visualize and more quickly access the data tables found within the body or appendix of this report. Greater detail on specific water rights is found on the interactive map than in the appendix. These water right details were downloaded from the 2016 DWRi website.

Date: 7/11/2017
Document Path: H:\Projects\399 - Mt. Nebo Water Agency\01.100 - Regional Water Supply Study\GIS\Working\Figure 1-2 Areas (edited).mxd



MNWA Regional Water Supply Study Subareas

FIGURE 1-2



Working with members of MNWA and other public water suppliers and county representatives, current and future water demands were determined based on population projections and plans for development. Capacity and other information of existing public water supplier facilities was gathered and used to create a combined hydraulic model used to study possible interaction of water resources. A list of existing water rights within the study area was assembled and a total average annual volume of water available from water rights and shares in irrigation companies was generally evaluated. A dependable water supply for the region was quantified based on historical measurements of surface water, hydrogeologic analysis of groundwater, and an accounting of imported water. Previous studies in the MNWA study area were gathered and considered as part of the study.

CHAPTER 2 – DEMOGRAPHICS AND LAND USE

POPULATION PROJECTIONS

Population projections are estimates of population in the future. Unlike a census which involves gathering field data, population projections are typically based on the most recent decennial census and use mathematical models that incorporate assumptions about future births, deaths, migration between geographic boundaries or other factors. The population projections for Utah County considered in this study are based on the 2010 United States Census, a decennial census mandated by the constitution of the United States that is an actual count of persons dwelling in the United States.

Long-term population projections for communities within the MNWA study area have been made in recent years for the Utah Governor's Office of Management and Budget (GOMB) and Envision Utah.

GOMB Projections

The GOMB is a publicly-funded state organization created to support Utah's governor in decision making by providing data, including demographic data. In 2012, the GOMB published decennial population projections from 2010-2060 for Utah County municipal areas. These projections are based on the 2010 U.S. Census. Future population growth projections are created using demographic data provided by The University of Utah's Kem C. Gardner Policy Institute which takes into account trends in fertility, mortality, and migration (Kem C. Gardner Policy Institute, 2016).

The Institute projects Utah's population to more than double the national rate of projected growth but follows the national trend with decreasing growth rates within the next fifty years. In a policy brief in 2016, the Institute projected decadal growth ranges from 20.5 percent in the 2015 to 2025 period to 9.2 percent in the 2055 to 2065 period for the state. According to the study, an increase in life expectancy and net migration, as well as a declining fertility rate and declining rate of natural increase are significant components of population change over the next 50 years (Kem C. Gardner Policy Institute, 2016).

Envision Utah Projections

Envision Utah is a non-profit organization in Salt Lake City, Utah with a stated mission to promote quality, sustainable growth within Utah. Envision Utah partnered with public and private organizations to hire a private consulting firm to produce a market-driven growth scenario in 2014 to project how the Wasatch Front Region would grow and develop through the year 2050 (Robert Charles Lesser & Co. Real Estate Advisors, 2014). Included in the report are long-range population projections for Utah that are based on the 2010 U.S. Census and real estate demand. Real estate demand includes factors such as land availability, market dynamics, and long term consumer and demographic trends. The report prepared for Envision Utah, questions GOMB population projection data that shows aggressive growth followed by sudden declining growth rates and a dramatic decrease in fertility rates and household size. Their projected populations for Utah County consist of gradually increasing growth rates out to 2050 (Robert Charles Lesser & Co. Real Estate Advisors, 2014).

Projections Used in MNWA Study

GOMB population projections to the year 2060 for cities and towns in the MNWA study area are used in this study with the exception of the Goshen Valley Water District Subarea. Municipalities within the study area generally use GOMB population projections in their planning studies. Population projections prepared for Envision Utah were used for the Goshen Valley Water District subarea (Robert Charles Lesser & Co. Real Estate Advisors, 2014). The Envision Utah projections conservatively reflect long-range planning by the State of Utah of recommending Goshen Valley as a mega site for future large industrial development. The GOMB population projections for Goshen Valley do not take into account Goshen Valley's designation as an area the State is planning to market to future new industries coming to Utah.

Long-term Population Projections

A comparison of long-term population projections prepared for GOMB and Envision Utah for the communities within the MNWA study area, show that despite differences in initial growth, projected population in fifty years appears relatively similar for either projection. For example, Figure 2-1 is a graph showing the projected population growth of Santaquin City. As described previously, the GOMB projection shows aggressive growth for the first few decades and then slowed growth to a more moderate rate out to the year 2060. The Envision Utah population projection shows gradual growth out to 2050. The GOMB and Envision Utah projections of population for Santaquin City converge over time. If a similar rate of growth continues out to the year 2060 for the Envision Utah projection, it appears the projections show a population of between 43,000 and 53,000 people for Santaquin City in the year 2060. Figure 2-1 is representative of the population comparison graphs prepared for the subareas in the study area with the exception of the Goshen Valley Local District Subarea (see Appendix A). A comparison graph using GOMB and Envision Utah population projections for each populated subarea is found in Appendix A.

Existing Population Estimates

The U.S. Census Bureau produces annual population estimates for U.S. cities and towns using their most recent decennial census and ongoing survey data and methodology. The U.S. Census Bureau estimates of population for the years 2011 to 2015, published in 2016, were used as population estimates for the cities and towns in this study (U.S. Census Bureau, 2016). Table 2-1 shows populations from the 2010 U.S. Census as well as estimates of population for the year 2015. As part of required annual water use reporting, public water suppliers in Utah report their service population to the Division of Water Rights (DWRi). For comparison, these population estimates are included in Table 2-1 for 2015. Cities and towns in the MNWA estimate their populations for the DWRi survey based on the 2010 U.S. Census and new building permits, number of connections and other growth indicators. Some difference in population may be due to the estimates made at different times during the year. The U.S. Census Bureau made their estimates for July 1, 2015. Cities and towns reported population estimates for 2015 at the end of the year. The places listed in Table 2-1 correspond to the subareas with the same name shown in Figure 1-2. Eight of the ten subareas that are expected to have population growth are listed. For these areas, the U.S. Census Bureau estimates of population were used to estimate an existing population for 2016 and 2060 using growth rates from the GOMB population projections as shown in Table 2-2.

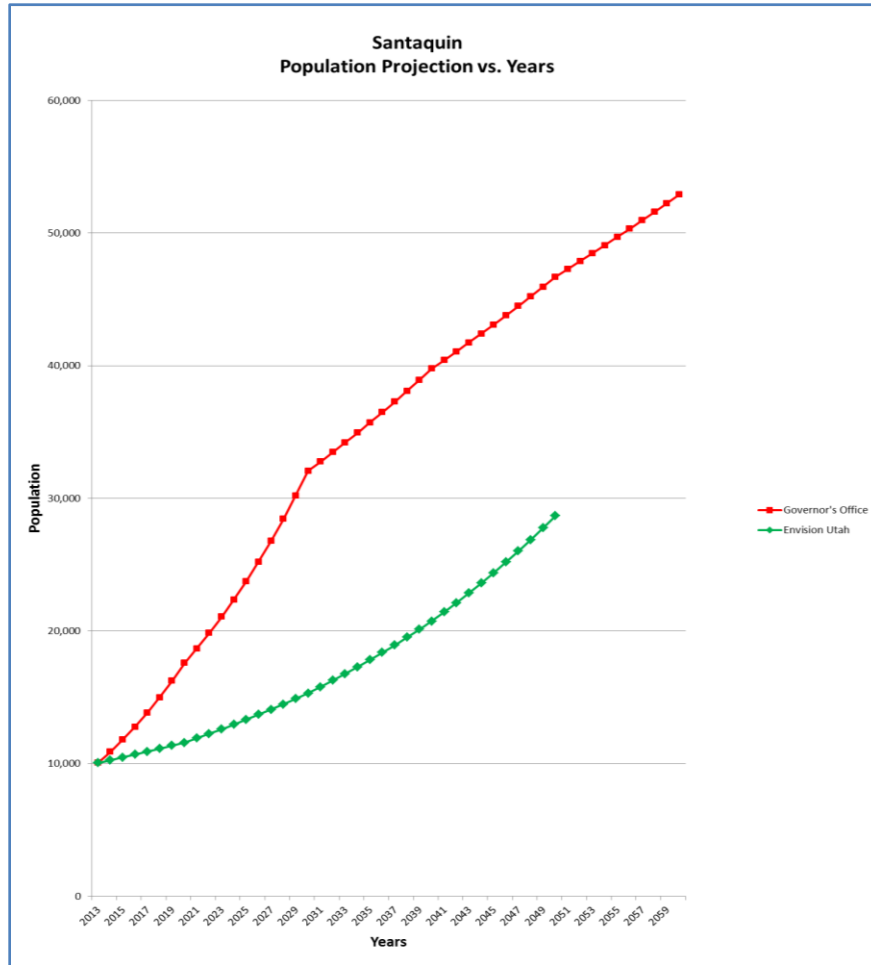


Figure 2-1: Santaquin City Population Projection Comparison

Table 2-1
2010 Census Populations and 2015 Population Estimates

Place	Decennial Census	Population Estimate U.S. Census Bureau	Population Estimate Reported to DWRi
	2010	2015	2015
Elberta ¹	256	N/A	230
Elk Ridge	2,436	3,183	3,400
Genola	1,370	1,419	1,500
Goshen	921	944	936
Payson	18,294	19,548	20,000
Salem	6,423	7,475	7,100
Santaquin	9,128	10,572	11,341
Spanish Fork	34,691	37,935	39,550
Woodland Hills	1,344	1,482	1,640

¹ U.S. 2010 Census designated place

For the Goshen Valley Water District Subarea not listed in Table 2-1, the census designated community of Elberta was used as the existing population. The U.S. Census Bureau report “Utah:2010, Population and Housing Unit Counts” shows the location of Elberta extending throughout the currently sparsely populated Goshen Valley Water District Subarea (U.S. Census Bureau, 2012). Envision Utah growth rates for the Goshen Valley area were used to estimate existing and future population shown in Table 2-2.

The Benjamin/Lakeshore Subarea, also not listed in Table 2-1, contains partial census designated areas of Benjamin, Palmyra, Lake Shore and West Mountain. Part of the Palmyra census designated subarea is outside of the MNWA study area and parts of Benjamin and Lakeshore are considered within the Payson Subarea (U.S. Census Bureau, 2012). Rather than use the population estimates from the 2010 census for the Benjamin/Lakeshore Subarea, existing population was estimated using aerial imagery to count the number of homes within the subarea boundary. GOMB growth rates from unincorporated Utah County were used to estimate population in the future, for the year 2060.

**Table 2-2
Population Projections**

Subarea	Population	
	Existing ¹	Future ²
Elk Ridge	3,287	7,902
Genola	1,727	10,800
Goshen Town	981	1,800
Goshen Valley/Elberta	275	25,628 ³
Payson	20,574	60,124
Salem	8,128	45,200
Santaquin	12,782	52,900
Spanish Fork	39,187	78,300
Benjamin/Lakeshore	2,573	18,025
Woodland Hills	1,564	5,300
Total MNWA Area	91,078	305,979

¹ Based on Utah Census Bureau, Population Estimates 2011-2015 for cities and towns in the 2010 U.S., published in 2016 (U.S. Census Bureau, 2016) and GOMB growth rates applied for 2016 population estimate

² GOMB Municipal Population Projections 2010-2060 with 2012 Baseline Projections (GOMB, 2012). Elk Ridge and Payson City 2060 populations were adjusted downward to build-out population estimates provided by the city

³ Wasatch Front 2015 Market-Driven Growth Scenario prepared by Envision Utah (Robert Charles Lesser & Co. Real Estate Advisors, 2014).

LAND USE

The MNWA study area consists of about 292,765 acres. Of this area, a little more than half, approximately 161,960 acres, is within the ten subarea boundaries listed in Table 2-2 and is expecting population growth in the next fifty years.

The other subareas within the study area are not expected to have population or development within the next fifty years. These subareas include Utah Lake, Wetlands, and Public Lands/Other. Utah Lake is subject to many government rules and protections. Any planning and development in or around Utah Lake is managed by the Utah Lake Commission, created by the State, and development of land within Utah Lake Subarea is restricted.

The subarea in Figure 1-2 shown as Wetlands, is part of Utah Lake Wetlands Preserve. These areas were designated by state and federal agencies in an agreement in 1996 to be acquired and managed by the Utah Reclamation Mitigation and Conservation Commission. The preserve consists of two areas: Goshen Bay and Benjamin Slough. Land within the preserve is protected from development under federal and state law.

The subarea listed in Figure 1-2 as Public Lands/Other, includes the mountainous area of West Mountain and parts of the Wasatch Range as well as parts of the East Tintic Mountains and surrounding areas bordering the Goshen Valley/Elberta Subarea. Much of the land in Public Lands/Other consists of land owned by federal government agencies such as the Bureau of Land Management (BLM) and National Forest Service. Although the BLM does occasionally sell public land, most land is retained for public ownership due to a congressional mandate in 1976. Thus BLM land is not anticipated to be developed or have a demand for water. A few parcels of privately owned land within Goshen Valley that border BLM land and were also unpopulated are included in the subarea.

The amount of agricultural land currently being irrigated with sources of water not in a municipal pressurized system, was calculated from water usage-related polygon map data, published annually by the Utah Division of Water Resources (DWR) (DWR, 2016). Water related land use was used by the DWR to depict irrigation type: irrigated, sub-irrigated, non-irrigated, riparian, urban, etc. When calculating the amount of agricultural land within the MNWA study area, land shown as sub-irrigated or dry land agricultural on the DWR map titled "Water Related Land Use-Irrigation Type," was not considered as irrigated agricultural land. According to the DWR map, there are 55,647 acres of agricultural land that is being irrigated within the MNWA study area in the year 2016. The water used to irrigate agricultural land that is not from a municipal water system is referred to in this report as "agricultural water." With the exception of a few acres of privately owned land within the Utah Lake Wetlands Preserve, land irrigated with agricultural water is within the boundaries of the ten subareas that are expected to see population growth.

Table 2-3 lists the amount of irrigated land in each study subarea according to the DWR Water Related Land Use-Irrigation Type map from 2016. Figure 2-2 shows the mapped location of irrigated agricultural land in the MNWA study area by subarea. Appendix B contains the same information shown on Figure 2-2 but provides a separate map of each individual subarea containing irrigated agricultural land.

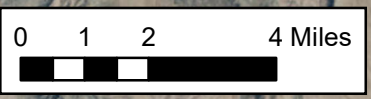
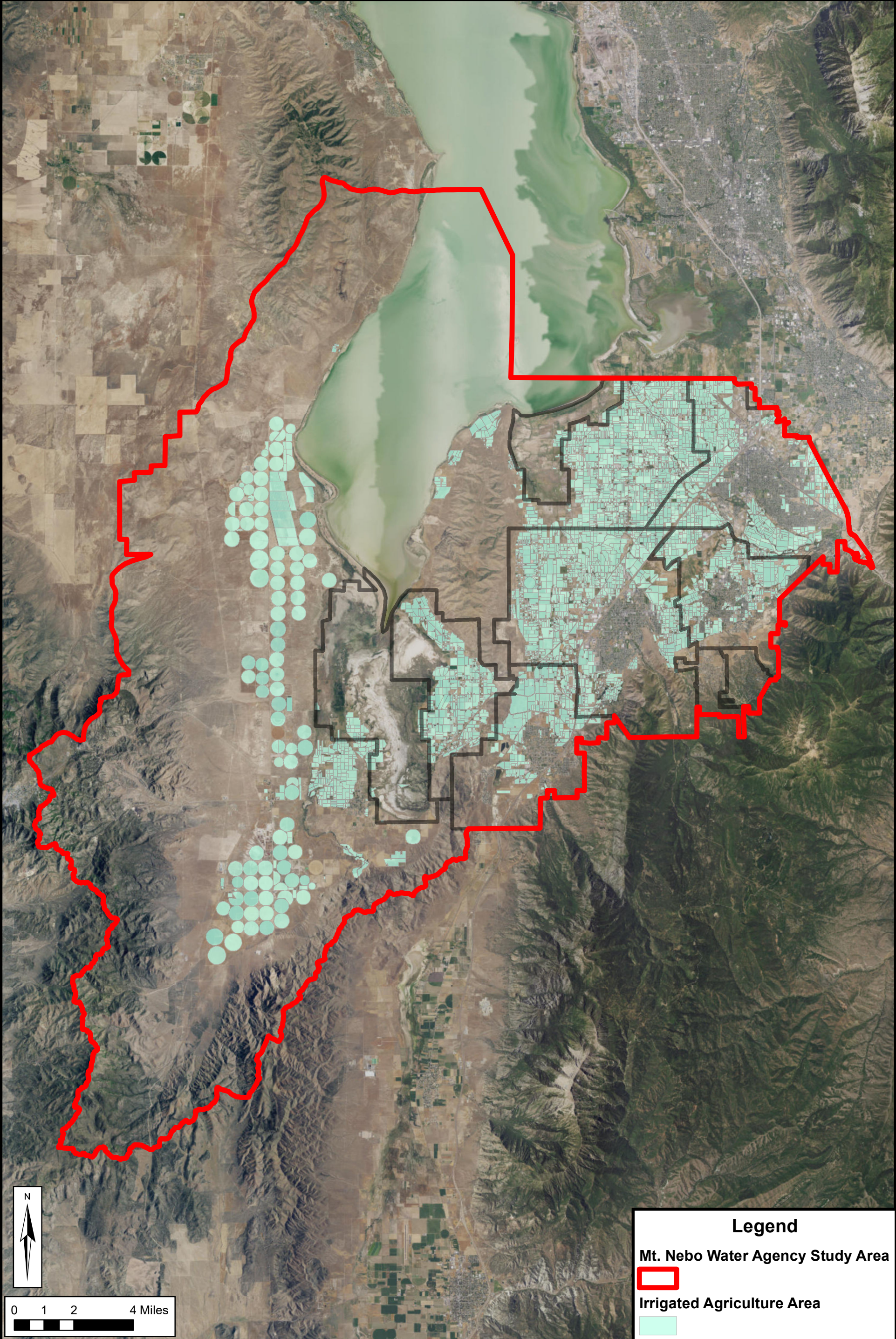
**Table 2-3
Irrigated Agricultural Land**



MNWA Regional Water Study Subareas	Subarea Area (acres)	Irrigated Agricultural Land¹ (acres)
Benjamin/Lakeshore	16,716	10,610
Elk Ridge	2,106	0
Genola	9,473	4,266
Goshen	4,931	2,339
Goshen Valley/Elberta	70,074	13,370
Payson	19,987	10,180
Salem	8,956	3,528
Santaquin	12,081	3,497
Spanish Fork	15,987	6,948
Wetlands	16,782	909
Woodlands Hills	1,649	0
Public Lands/Other	76,555	0
Utah Lake	37,468	0
MNWA study area Total	292,765	55,647

¹Irrigated agricultural land was determined from the 2016 Water Related Land Use Map published by the Utah DWR (DWR, 2016).

The amount of irrigated agricultural land shown in Table 2-3 is expected to decrease in the future while population in the MNWA study area is projected to triple by 2060 as shown in Table 2-2. The extent to which agricultural lands are preserved in South Utah County is largely dependent on current efforts to sustain agriculture.

Envision Utah, a non-profit organization in Utah with a stated mission to promote quality, sustainable growth, has encouraged the cooperation of policymakers and interested parties in the private sector to provide the community with strategies to benefit agriculture in Utah County. A document called “Utah County Agriculture Toolbox: Promoting and Sustaining Agriculture in Utah County” found on Envision Utah’s website explores various strategies to, “keep agriculture economically and socially viable and encourage development patterns and measures that support agricultural land and water (Envision Utah, 2017).” The optional recommendations provided by Envision Utah could promote legislation and other protective measures to preserve agricultural land in Utah. Current protections to agricultural land or city statements concerning a percentage of agricultural land to be preserved at build-out for their city, were considered in determining future agricultural land use.



Legend	
	Mt. Nebo Water Agency Study Area
	Irrigated Agriculture Area

CHAPTER 3 – WATER REQUIREMENTS

METHODOLOGY

The amount of water required to meet existing and future demand for water in the MNWA study area was determined by evaluating the water needs within the subareas. Ten subareas shown on Figure 1-2 are populated and have existing and future water needs: Benjamin/Lakeshore, Elk Ridge, Genola, Goshen, Goshen Valley/Elberta, Payson, Salem, Santaquin, Spanish Fork, and Woodland Hills. Nine of the ten subareas are currently served by one or more public water supplier which in most of the subareas is the main city or town within the subarea boundary. Water users in the Benjamin/Lakeshore Subarea generally use private wells and springs to supply their domestic water needs. Existing and future water requirements for this subarea were also calculated based on population and the same water requirement assumptions as other subareas. Although not considered a populated area now or in the future, agricultural water demand for the Wetlands Subarea was considered.

Indoor and outdoor demands for each subarea are expressed in terms of equivalent residential connections (ERCs), which for planning purposes are the same as equivalent residential units (ERUs). The use of ERCs is a standard engineering practice to describe the entire system in a common unit of measurement. One ERC is equal to the average demand of an average residential connection. Non-residential demands are converted to ERCs for planning purposes. For example, a commercial building requiring six times as much water as a typical residential connection is assigned an ERC of 6. The entire water demand can then be described in terms of a single unit, ERCs.

For each subarea, the existing numbers of ERCs for indoor and outdoor municipal water use were either provided by the city or town in the subarea or calculated from population and land use information. Where available, HAL obtained the number of ERCs for indoor and outdoor municipal water use through the most current engineering reports and studies. Similar information was also obtained by talking with city representatives about their municipal water systems. ERCs were also estimated based on the number of connections reported to the DWRi, with adjustments made for non-residential water user connections (DWRi, 2017). Aerial imagery was also used to estimate the number of residences in populated subareas without municipal water suppliers.

The same growth rates used to estimate existing and future populations for the populated subareas were used to estimate corresponding existing and future ERCs. For example, if a city's most recent drinking water master plan reported the number of ERCs for indoor water use for the year 2012, annual population growth data and projections were used to estimate the number of ERCs for years 2013 through 2060. From the annual number of ERCs, an increasing indoor and outdoor demand for water was calculated for each populated subarea.

Similarly, the demand for agricultural water was assumed to decrease in subareas where the number of acres of irrigated agricultural land was expected to decrease with population growth and development. Agricultural water requirement is defined in this report as water used to irrigate agricultural land that is not from a municipal system. The agricultural water requirement for the Wetlands Subarea was assumed to remain the same in the year 2060 due to regulatory protections on the land prohibiting development. The agricultural water requirement for the Goshen Valley/Elberta Subarea was also assumed to remain the same due to the vast amount of land available for development or future agricultural use that is not currently irrigated. For the remaining subareas, the amount of agricultural land was assumed to decrease each year based

on the number of ERCs increasing within a subarea. For these calculations, growth rates used to estimate existing and future populations for the populated subareas were used to estimate corresponding existing and future ERCs.

Some cities provided a percentage of agricultural land that was estimated to remain after build-out. For these cities, agricultural water demand was not reduced beyond the amount needed to water the stated amount of agricultural land at build-out. Not all land designated as agricultural land on city general plans, however, is assumed to remain at build-out since agricultural water demand for this study is based on population growth.

Many factors influence population projections. The population estimates shown in Table 2-2 may vary significantly from the actual population experienced in 2060. Although the year at which a city may reach a particular population may vary, the amount of water required for a city corresponds directly to the population.

Existing and future water requirements were calculated from ERC's in accordance with State requirements and best practice engineering assumptions discussed in the following section.

WATER REQUIREMENT CALCULATION ASSUMPTIONS

Municipal water requirements for this study are considered to be the existing and future amount of water demand on a municipal system needed to meet both indoor and outdoor watering needs. If a public water supplier in the MNWA study area has both a public drinking water system and secondary water system, the secondary system provides water for outdoor use and indoor demand is allocated to the drinking water system.

In addition to municipal water requirements, agricultural water requirement is the amount of water needed to irrigate land that is not served by a municipal system. The amount of acres in the study area currently using agricultural water was determined for each subarea by overlaying the MNWA subarea boundaries map over the Water Related Land Use Map produced annually by the Utah Division of Water Resources (DWR, 2016). Land designated on the map as irrigated land was included in the count of irrigated acres. Although also designated as agricultural land, land designated as "not irrigated" or "NI" on the DNR map for any reason such as dry land agricultural, sub-irrigation or fallow land, was not included.

An annual volume of water requirement, peak day flow and storage requirements were calculated each year from the year 2016 to the year 2060 for indoor use, outdoor use and agricultural water. For indoor and outdoor municipal water requirements, calculations were based on the increasing number of ERCs within a subarea and peak daily and average daily factors based on state standards and actual demand from historical data from service providers in the Wasatch Front. Water requirements for agricultural water was assumed to decrease in future years for subareas with increasing ERC's and development of existing agricultural lands.

Peak Day and Average Annual Demand

Peak day demand is the water demand on the day of the year with the highest water use. It is used to determine required source capacity under existing and future conditions. Average yearly demand is the volume of water used during an entire year, and is used to ensure there is sufficient water rights and sources to supply enough volume to meet demand under existing and future conditions.

For facility design and operation requirements, the Utah Administrative Code states that peak day demand and average day demand may be calculated by either applying the Utah Division of

Drinking Water (DDW) standard factors or computing the demand from actual water use data (Appendix C, Subsection R309-510-7(2)). It is noted that the DDW is currently working on standards specific to communities within the state rather than having one standard for the entire state. Two tables showing a comparison of state DDW standard requirements and historical average water used in cities along the Wasatch front are found in Appendix D. This comparison is summarized in Table 3.1 which shows the DDW state standards for indoor requirements exceed actual use. Also summarized in Table 3.1, the state requirements for outdoor water underestimate actual outdoor demand as described by the Office of the Utah Legislative Auditor General in a report to the State Legislature published in 2014 (State of Utah Office of the Legislative Auditor General, 2014).

**Table 3-1
State DDW Standard Requirement and Average Actual Water Use**

	State Standards		Average Actual Use ¹	
	Annual Volume	Peak Day Flow	Annual Volume	Peak Day Flow
Indoor Water	400 gpd/ERC	800 gpd/ERC	239 gpd/ERC	338 gpd/ERC
Outdoor Water	194-242 gpd/ERC	800 gpd/ERC	383 gpd/ERC	1,455 gpd/ERC

¹Average actual use is based on historical records from Draper City, South Jordan City, Midvale City, Layton City, Sandy City, Spanish Fork City, Blanding City South Salt Lake City and Granger Hunter Improvement District for indoor and outdoor peak day demand and indoor annual volume. Average actual use annual volume is based on historical records from Sandy City, Provo City, and Salt Lake City.

For this study, the indoor and outdoor water requirement was based on state standards and historical use data as described in the following section.

Municipal Water – Municipal water in this report is water that serves the indoor and outdoor water needs of a municipality through either a public drinking water system or secondary water system. The factors shown in Table 3-2 were used to calculate municipal peak day flow and average annual volume for indoor and outdoor demand for the MNWA subareas. The indoor annual volume and peak day flow factors are less than state standards but conservatively represent historical use summarized in Table 3-1. Although Table 3-1 shows historical outdoor water use is nearly twice the State standard, recent application of conservation techniques for outdoor watering is showing water requirements more closely matching state standards (See Appendix D). Conservation techniques include installation of meters on users’ secondary water, aggressive rate structures, and enforced rotation systems allowing users to water only certain days during a week. Lot size of new development has also decreased per ERC since the year 2000 and we assume that lot size will continue to decrease as housing density increases.

**Table 3-2
Municipal Water Requirement Assumptions**

Municipal Water Distributed within Subarea Boundaries	REQUIREMENTS		
	Annual Volume	Peak Day Flow	Storage
Indoor Water	300 gpd/ERC (0.336 ac-ft/ERC)	400 gpd/ERC (0.45 ac-ft/ERC)	400 gal/ERC
Outdoor Water	400 gpd/ERC (0.45 ac-ft/ERC)	800 gpd/ERC (0.9 gpm/ERC)	1350 gal/ERC

For the MNWA Regional Water Supply Study, outdoor water demand calculations assume application of conservation techniques including metering for all municipal outdoor connections. Although metering has not been implemented yet in all outdoor municipal water systems within the MNWA study area, it is a goal for public water suppliers and is consistent with water conservation goals for the State.

Agricultural Water – Agricultural water is water used to irrigate agricultural land that is not from a municipal system. To determine the demand for agricultural water in the MNWA study area, first, irrigation water supply was identified through historical records and second, cropping patterns and consumptive use of irrigated land in the study area were evaluated.

Historical Irrigation Water Supply - Historical records of water supplied by irrigation companies to the irrigated agricultural land in the study area were collected from a 1998 CUWCD study which included 44 years of records from 1930 to 1973 (CUWCD, 1998) and twenty-seven years of annual reports from the Spanish Fork Water Commissioner from 1990 to 2016 (Spanish Fork Water Commissioner, 1933-2016). A detailed explanation of this analysis of historical water supply records is found in Appendix E with accompanying data tables.

The evaluation of historical annual water supply of Spanish Fork River irrigation companies yielded 2.11 ac-ft/acre as an average annual irrigation water supply from all agricultural water sources, including groundwater, surface water, return flow and imported Strawberry Project water. An evaluation of a representative number of irrigation companies throughout the MNWA study area, including companies that receive their water from sources other than the Spanish Fork River, had an historical weighted average irrigation water supply from all sources of 2.17 ac-ft/acre as shown in Table 3-3.

Cropping Patterns and Consumptive Use – A requirement for water on irrigated lands in the MNWA study area was calculated based on the amount of irrigated acres, type of crop, and consumptive use of the crop. The 1998 CUWCD study includes an evaluation of cropping patterns and consumptive use of crops within the MNWA study area (CUWCD, 1998). As shown in Table 3-3, the average water requirement for irrigation companies in the MNWA study area is 2.86 ac-ft per acre based on cropping patterns and consumptive use reported in the 1998 CUWCD study. Cropping patterns from the 1998 CUWCD report were compared and found similar to cropping patterns on the 2016 Water Related Land Use Map. The calculated average annual water requirement of 2.86 ac-ft per acre is higher than the historical average annual water supply of 2.17 ac-ft per acre, indicating a shortage of water supply to meet the demand. For existing and future agricultural water demand in this study, the annual water requirement was rounded to 3.0 ac-ft per acre as shown in Table 3-4. Historically, many farmers irrigating within the study area grew small grain crops but there is a growing trend to switch these crops to alfalfa, grasses, or orchards.

The annual demand to sustain crops should not be confused with the State water right duty of 4.0 acre-feet per acre. Current cropping patterns rely on the yield of water rights under varying hydrologic conditions. In dry years river flows are greatly diminished and even though a given farmer has paper water rights totaling 4.0 acre-feet per acre, the actual yield of those rights will be much less. In wet years, farmers have the ability to use their full water right duty by altering their cropping pattern such as planting corn after their small grain crop has matured.

**Table 3-3
Irrigation Company Historical Water Supply and Water Requirement**

Name	Service Area (Acres)	Diversion Requirement ¹ (ac-ft/acre)	Irrigation Demand ¹ (ac-ft)	Historical Irrigation Water Supply ² (ac-ft)	Historical Irrigation Water Supply ² (ac-ft/acre)
Current Creek Irrigation Company	6,274	3.19	20,014	9,028	1.44
Duck Creek Irrigation Company	434	2.90	1,256	1,735	4.00
East Bench Canal Company	4,251	3.31	14,079	6,144	1.45
East Santaquin Irrigation Company	459	3.13	1,436	882	1.92
East Warm Creek Irrigation and Canal Company	210	3.19	670	843	4.02
Elberta Water Company	29	3.19	93	91	3.11
Goshen Irrigation and Canal Company	2,341	3.19	7,467	2,800	1.20
Lake Shore Irrigation Company	4,540	2.58	11,718	4,874	1.07
Loafer Water Users Association	38	2.90	110	157	4.12
New Northeast Spanish Fork Irrigation Company	236	2.58	609	944	4.00
Old Field Water Users Association ³	432	2.90	1,780	-	-
Salem Irrigation and Canal Company	2,465	2.58	6,362	5,863	2.38
Salem Pond Company	968	2.88	2,789	2,520	2.60
Spanish Fork South Irrigation Company	6,667	2.58	17,208	13,346	2.00
Spanish Fork Southeast Irrigation Class A Shares (river)	947	2.58	2,444	1,567	1.65
Spanish Fork Southeast Irrigation Class B Shares (well)	209	2.58	539	836	4.00
Spanish Fork West Field Irrigation Company	6,628	2.58	17,107	13,254	2.00
Strawberry High Line Canal Company	19,940	2.90	57,726	53,344	2.68
Summit Creek Irrigation & Canal Company	2,153	3.13	6,739	8,540	3.97
Warm Springs Irrigation and Power Company	1,437	2.58	3,708	3,701	2.58
Wash Creek Irrigation Company	375	2.58	968	2,135	5.69
Total	61,033	2.86⁴	174,822	132,604	2.17⁴

¹Based on cropping patterns and consumptive use found in the 1998 CUWCD study (CUWCD, 1998).

²Based on historical irrigation water supply (CUWCD, 1998) (Spanish Fork Water Commissioner, 1933-2016).

³Old Field Water Users Association historical water supply was not included since the service area of the company has significantly decreased and Payson City now supplies water to the company.

⁴This is a weighted average based on service area.

**Table 3-4
Agricultural Water Requirement Assumptions**

Agricultural Water used in Subarea Boundaries	REQUIREMENTS		
	Annual Volume	Peak Day Flow	Storage
Existing and Future Agricultural Water ¹	3.0 ac-ft/acre	3.69 gpm/acre	NA

¹ Agricultural water demand assuming agricultural water supply is equal to the amount of water needed to meet the irrigation needs of their shareholders.

The Peak Day Flow listed in Table 3-4 was calculated using the annual volume of 3.69 gpm per acre assuming flow only during the irrigation season. The regular distribution of agricultural water is controlled by the supplier according to water right or share priorities and does not experience peak flows like a pressurized system. Thus the peak day flow shown in Table 3-2 is the same as an average daily flow based on the annual volume distributed over an irrigation season of 184 days.

MNWA MEMBER CITIES/SUBAREAS

Genola

Genola Town has an area of 9,078 acres and is located in Goshen Valley on the south end of Utah Lake in southern Utah County as shown in Figure 1-3. The Town is bounded on the northwest by the Goshen Bay area of Utah Lake Wetland Preserve and on the east by BLM land on West Mountain. Santaquin City lies south and west of the Town. In the past several decades the Town has experienced steady population growth. In a period of twenty years, from 1990 to 2010, the population in Genola grew from 803 to 1,370 people (U.S. Census Bureau, 2012). As shown in Table 2-2, the estimated existing population of Genola Town is 1,727 people. By the year 2060, the GOMB projected a population of 10,800 people. According to the Genola Town General Plan adopted by the Town in 2014, the build-out population for the Town is 11,117 people (Mountainland AOG, 2015).

As shown in Table 3-5, the Town currently uses approximately 389 ac-ft of water for municipal use. When the population of the City reaches 10,800 people as estimated in fifty years, it is anticipated that the City will use 2,510 ac-ft of water in their water systems. The peak day flow and storage requirements for existing and future use are also shown in Table 3-5.

Within the Genola Subarea, approximately 4,266 acres of land is currently being irrigated with agricultural water according to the DWR Water Related Land Use Map (DWR, 2016). Table 3-5 shows an existing demand for agricultural water of 12,798 ac-ft in the Genola Subarea. The demand will be reduced to approximately 7,316 ac-ft in the year 2060.

Table 3-5 is a summary of calculations for annual municipal water and agricultural water requirements. Yearly requirements are shown in detail in Appendix F. These calculations are based on population projections, the number of equivalent residential connections for indoor and outdoor use, and the assumptions listed in Table 3-2 and 3-4.

**Table 3-5
Genola Subarea Water Requirements**

Genola	Existing (2016)			Future (2060)		
Population	7,475			10,800¹		
Water Distributed within Genola Subarea Boundary	Annual Volume (ac-ft)	Peak Day Flow (gpm)	Storage (MG)	Annual Volume (ac-ft)	Peak Day Flow (gpm)	Storage (MG)
Indoor Water ²	166	138	0.2	1,041	860	1.2
Outdoor Water ²	223	446	0.7	1,469	2,938	4.4
Annual Municipal Requirement	389	583	0.9	2,510	3,798	5.6
Agricultural Water ³	12,798	15,739	0.0	7,316	8,997	0.0
Total Annual Requirement	13,187	16,323	0.9	9,826	12,795	5.6

¹ Population projections from GOMB (GOMB, 2012).

² Existing indoor and outdoor municipal water requirement for Genola Town is allocated to the drinking water system. The demand for outdoor use assumes conservation techniques including metering.

³ Agricultural water is used to irrigate agricultural land within the subarea boundary that is not from a municipal water system. The amount of acres irrigated with agricultural water was estimated from the Water Related Land Use Map published annually by Utah DWR.

Payson

Payson City covers an area of 7,869 acres. It has experienced significant growth over the last 20 years. From 1990 to 2010 the population grew from 9,510 to 18,294 (U.S. Census Bureau, 2012). As shown in Table 2-2, the estimated existing population is 20,574 people and by the year 2060, GOMB projected a population of 67,200. This population, however, exceeds a build-out population of 60,124 people that is stated in a report provided by the City (Horrocks Engineers, 2014). In this study we calculated future water needs based on the build-out population provided by the City.

As shown in Table 3-6, the City currently uses a total of approximately 6,800 ac-ft of water for municipal use, including the water used at the Nebo Power Plant. It should be noted that the largest water user in the City is the power plant and that this is a demand not found in other communities in the MNWA study area. When the population of the City reaches 60,124 people, it is anticipated that the City will use 16,645 ac-ft of water for municipal use in its drinking water system, secondary water system and power plant. The peak day flow and storage requirements for existing and future use are also shown in Table 3-6.

Within the Payson Subarea, approximately 10,180 acres of land are currently being irrigated with agricultural water according to the DWR Water Related Land Use Map (DWR, 2016). Table 3-6 shows an existing demand for agricultural water of 30,540 ac-ft. This demand will be reduced to 9,522 ac-ft at build-out due to changes in land use.

**Table 3-6
Payson Subarea Water Requirements**

Payson	Existing (2016)			Future (2060)		
Population	20,574			60,124¹		
Water Distributed within Payson Subarea Boundary	Annual Volume (ac-ft)	Peak Day Flow (gpm)	Storage (MG)	Annual Volume (ac-ft)	Peak Day Flow (gpm)	Storage (MG)
Indoor Water ²	2,635	2,179	3.1	7,704	6,369	9.2
Outdoor Water ³	2,484	4,967	7.5	7,260	14,520	21.8
Payson City Power Plant	1,681	1,042	0.0	1,681	1,042	0.0
Annual Municipal Requirement	6,800	8,188	11.0	16,645	21,931	31.0
Agricultural Water ⁴	30,540	37,559	0.0	9,522	11,711	0.0
Total Annual Requirement	37,340	45,746	11	26,167	33,642	31

¹ Build-out population estimated by Payson City (Horrocks Engineers, 2014).

² Indoor municipal water requirement is allocated to the drinking water system.

³ Outdoor municipal water requirement is allocated to the secondary water system. The demand for outdoor use assumes conservation techniques including metering.

⁴ Agricultural water is used to irrigate agricultural land within the subarea boundary that is not from a municipal water system. The amount of acres irrigated with agricultural water was estimated from the Water Related Land Use Map published annually by Utah DWR.

Table 3-6 is a summary of calculations for annual municipal and agricultural water requirements. Yearly requirements are shown in Appendix F. These calculations are based on population projections, the number of equivalent residential connections for indoor and outdoor use, amount of irrigated acres and the assumptions listed in Table 3-2 and Table 3-4.

Salem

Salem City covers an area of 6,539 acres. During a period of twenty years, from 1990 to 2010 the population nearly tripled, growing from 2,284 to 6,423 (U.S. Census Bureau, 2012). As shown in Table 2-2, the existing population is estimated at 8,128 people and by the year 2060, the projected population is 45,200 people. A build-out population of 76,000 people was provided by the City based on an impact fee report (Horrocks Engineers, 2012). According to this estimate, the City will not reach build-out before the year 2060. In this study future water needs were based on the projected population for the year 2060 of 45,200 people.

As shown in Table 3-7, the City currently uses approximately 1,774 ac-ft of water for municipal use. When the population of the City reaches 45,200 people, it is anticipated that the City will use 9,867 ac-ft of water in their drinking water and secondary water systems. The peak day flow and storage requirements for existing and future use are also shown in Table 3-7.

Within the Salem Subarea, approximately 3,528 acres of land are currently being irrigated with agricultural water according to the DWR Water Related Land Use Map (DWR, 2016). According to Salem City, it is estimated that 5 percent of agricultural land within existing City boundaries and planned annexation areas will remain agricultural after the City reaches build-out. Table 3-7 shows an existing demand for agricultural water of 10,584 ac-ft in the Salem Subarea. This demand will be reduced to approximately 2,399 ac-ft in the year 2060.

**Table 3-7
Salem Subarea Water Requirements**

Salem	Existing (2016)			Future (2060)		
Population	8,128			45,200¹		
Water Distributed within Salem Subarea Boundary	Annual Volume (ac-ft)	Peak Day Flow (gpm)	Storage (MG)	Annual Volume (ac-ft)	Peak Day Flow (gpm)	Storage (MG)
Indoor Water ²	758	627	0.9	4,218	3,487	5.0
Outdoor Water ³	1,016	2,032	3.0	5,649	11,298	16.9
Annual Municipal Requirement	1,774	2,659	4.0	9,867	14,785	22.0
Agricultural Water ⁴	10,584	13,016	0.0	2,399	2,950	0.0
Total Annual Requirement	12,358	15,675	4.0	12,266	17,735	22.0

¹ Population projections from GOMB (GOMB, 2012).

² Indoor municipal water requirement is allocated to the drinking water system.

³ Outdoor municipal requirement is allocated to the secondary water system. The demand for outdoor use assumes conservation techniques including metering.

⁴ Agricultural water is used to irrigate agricultural land within the subarea boundary that is not from a municipal water system. The amount of acres irrigated with agricultural water was estimated from the Water Related Land Use Map published annually by Utah DWR.

Table 3-7 is a summary of calculations for annual municipal and agricultural water requirements. Yearly requirements are shown in Appendix F. These calculations are based on population projections, the number of equivalent residential connections for indoor and outdoor use, amount of irrigated acres and the assumptions listed in Table 3-2 and Table 3-4.

Santaquin

Santaquin City covers an area of 6,616 acres within its current municipal boundaries. During a period of twenty years, from 1990 to 2010 the population grew from 2,386 to 9,128 (U.S. Census Bureau, 2012). As shown in Table 2-2, the estimated existing population is 12,782 people. By the year 2060, the GOMB projected a population of 52,900 people. According to the Santaquin City General Plan from 2014, the build-out population is between 45,000 and 55,000 people (Mountainland AOG, 2014). In this study we calculated future water needs based on the projected population for the year 2060 of 52,900 people.

The City currently uses approximately 2,685 ac-ft of water for municipal use. When the population of the City reaches 52,900 people, it is anticipated that the City will use 11,316 ac-ft of water. The peak day flow and storage requirements for existing and future use are also shown in Table 3-8.

Within the Santaquin Subarea, approximately 3,497 acres of land is currently being irrigated with agricultural water according to the DWR Water Related Land Use Map (DWR, 2016). This appears consistent with the Santaquin City General Plan estimates (Santaquin City, 2014). According to Santaquin City, it is estimated that 25 percent of agricultural land use within Santaquin City's existing and planned annexation areas will remain after the City reaches build-out. Table 3-8 shows an existing demand for agricultural water of 10,491 ac-ft in the Santaquin Subarea. This demand will be reduced to 2,637 ac-ft.

**Table 3-8
Santaquin Subarea Water Requirements**

Santaquin	Existing (2016)			Future (2060)		
Population	12,782			52,900¹		
Water Distributed within Santaquin Subarea Boundary	Annual Volume (ac-ft)	Peak Day Flow (gpm)	Storage (MG)	Annual Volume (ac-ft)	Peak Day Flow (gpm)	Storage (MG)
Indoor Water ²	1,333	1,102	1.6	5,519	4,563	6.6
Outdoor Water ³	1,351	2,703	4.1	5,797	11,594	17.4
Annual Municipal Requirement	2,685	3,805	5.6	11,316	16,156	24.0
Agricultural Water ⁴	10,491	12,902	0.0	2,637	3,243	0.0
Total Annual Requirement	13,176	16,707	6	13,953	19,400	24

¹ Population projections from GOMB (GOMB, 2012).

² Indoor municipal water requirement is allocated to the drinking water system.

³ Outdoor municipal water requirement is allocated to the secondary water system. The demand for outdoor use assumes conservation techniques including metering.

⁴ Agricultural water is used to irrigate agricultural land within the subarea boundary that is not from a municipal water system. The amount of acres irrigated with agricultural water was estimated from the Water Related Land Use Map published annually by Utah DWR.

Table 3-8 is a summary of calculations for annual municipal and agricultural water requirements. Yearly requirements are shown in Appendix F. These calculations are based on population projections, the number of equivalent residential connections for indoor and outdoor use, amount of irrigated acres and the assumptions listed in Table 3-2 and Table 3-4.

Spanish Fork

Spanish Fork City covers an area of 10,253 acres and has experienced rapid growth over the last 20 years. From 1990 to 2010 the population more than tripled from just over 11,000 people in 1990 to 34,691 people as of the 2010 U.S. Census (U.S. Census Bureau, 2012). As shown in Table 2-2, the estimated existing population is 39,187 people. By the year 2060, the GOMB projected a population of 78,300 people. This population is similar to the build-out conditions projected for drinking water and exceeds a build-out population for secondary water of 74,643 people that was calculated from build-out ERCs listed in the Spanish Fork City Water Rights Master Plan (HAL, 2015). In this study water needs were calculated based on the build-out population for indoor and outdoor use.

As shown in Table 3-9, the City currently uses approximately 9,806 ac-ft of water for municipal use. When the population of the City reaches 74,643 people, it is anticipated that the City will use 19,114 ac-ft of water. The peak day flow and storage for existing and future use are also shown in Table 3-9.

**Table 3-9
Spanish Fork Subarea Water Requirements**

Spanish Fork	Existing (2016)			Future (2060)		
Population	39,187			74,643-78,300¹		
Water Distributed within Spanish Fork Subarea Boundary	Annual Volume (ac-ft)	Peak Day Flow (gpm)	Storage (MG)	Annual Volume (ac-ft)	Peak Day Flow (gpm)	Storage (MG)
Indoor Water ²	4,678	3,868	5.6	9,348	7,728	11.1
Outdoor Water ³	5,127	10,255	15.4	9,766	19,533	29.3
Annual Municipal Requirement	9,806	14,122	21.0	19,114	27,261	40.4
Agricultural Water ⁴	20,844	25,634	0.0	4,057	4,990	0.0
Total Annual Requirement	30,650	39,757	21	23,172	32,251	40

¹ Population projections from GOMB (GOMB, 2012) and build-out population estimated by Spanish Fork City (HAL, 2015).

² Indoor municipal water requirement is allocated to the drinking water system.

³ Outdoor municipal water requirement is allocated to the secondary water system. The demand for outdoor use assumes conservation techniques including metering.

⁴ Agricultural water is used to irrigate agricultural land within the subarea boundary that is not from a municipal water system. The amount of acres irrigated with agricultural water was estimated from the Water Related Land Use Map published annually by Utah DWR.

Within the Spanish Fork Subarea, approximately 6,948 acres of land is currently being irrigated with agricultural water according to the DWR Water Related Land Use Map (DWR, 2016). According to Spanish Fork City, it is estimated that about 1,352 acres of agricultural land will remain at build-out. Table 3-9 shows an existing demand for agricultural water of 20,844 ac-ft in the Spanish Fork Subarea. This demand will be reduced to 4,057 ac-ft by the year 2060.

Table 3-9 is a summary of calculations for annual municipal and agricultural water requirements. Yearly requirements are shown in Appendix F. These calculations are based on population projections, the number of equivalent residential connections for indoor and outdoor use, amount of irrigated acres and the assumptions listed in Table 3-2 and Table 3-4.

GOSHEN VALLEY

Goshen Valley Local District (GVLD) in South Utah County is designated as a public water supplier and service area even though they currently have no population within their present boundaries shown on Figure 1-3. GVLD currently encompasses just a small portion of Goshen Valley, with GVLD boundary area consisting of about 4,801 acres. GVLD, however, provides water to the public drinking water system of Elberta Water Company to serve residents of the community of Elberta, within the growth boundaries of GVLD.

The Governor's Office and the Economic Development Corporation of Utah (EDC Utah) have been considering the Goshen Valley as a mega site that could potentially attract large industrial development. The Goshen Valley/Elberta Subarea boundary used in this report encompasses about 70,000 acres in the Goshen Valley that are based on a preliminary specific area plan (Fregonese Associates, 2016). The plan area abuts the boundary of Goshen Town and encompasses the settlement of Elberta. According to the Goshen Valley Specific Area Plan, Goshen Valley could support a large industry with about 1,000 new jobs and rapid population growth.

Elberta was considered a U.S. Census designated place starting with the 2000 U.S. Census population count of 278 which remained about the same, 275, in the 2010 U.S. Census (U.S. Census Bureau, 2012). As shown in Table 2-2, Envision Utah population projections were used to calculate future population. Envision Utah projections take into account the State plan for a mega site in Goshen Valley. The growth rate used by Envision Utah to project population in 2050 was extended to project a population of 25,628 by 2060 in the Goshen Valley/Elberta Subarea. This population projection is far below the build-out population of 330,000 people stated in the Goshen Valley Specific Area Plan for this large Goshen Valley/Elberta area (Fregonese Associates, 2016).

As shown in Table 3-10, the community of Elberta currently has a need for 110 ac-ft of water for municipal use. When the population of the Goshen Valley/Elberta Subarea reaches 25,628 people, it is anticipated that the area will use 15,596 ac-ft of water in their municipal water systems. In addition to the future demand for outdoor water based on population growth, an additional 10,000 ac-ft of water for industrial use was included in the future demand based on the area's specific area plan (Fregonese Associates, 2016). The peak day flow and storage requirements for existing and future use are also shown in Table 3-10.

**Table 3-10
Goshen Valley/Elberta Subarea Water Requirements**

Goshen Valley/Elberta	Existing (2016)			Future (2060)		
Population	275			25,628¹		
Water Distributed within Goshen Valley/Elberta Subarea Boundary	Annual Volume (ac-ft)	Peak Day Flow (gpm)	Storage (MG)	Annual Volume (ac-ft)	Peak Day Flow (gpm)	Storage (MG)
Indoor Water ²	47	39	0.1	2,392	1,978	2.8
Outdoor Water ³	63	126	0.2	13,204	6,772	9.6
Annual Municipal Requirement	110	166	0.2	15,596	8,750	12.5
Agricultural Water ⁴	40,110	49,328	0.0	40,110	49,328	0.0
Total Annual Requirement	40,220	49,493	0.2	55,706	58,078	12.5

¹ Population projections from Envision Utah.

² Indoor municipal water requirement is allocated to the drinking water system.

³ Outdoor municipal water requirement is allocated to the secondary water system. Future demand includes 10,000 ac-ft of future large industrial use. The demand for outdoor use assumes conservation techniques including metering.

⁴ Agricultural water is used to irrigate agricultural land within the subarea boundary that is not from a municipal water system. The amount of acres irrigated with agricultural water was estimated from the Water Related Land Use Map published annually by Utah DWR.

Within the Goshen Valley/Elberta Subarea, approximately 13,370 acres of land is currently being irrigated with agricultural water according to the DWR Water Related Land Use Map (DWR, 2016). Even with a future population projection of 25,628 people, the amount of land irrigated with agricultural water is assumed to remain the same due to the vast amount of land in the Goshen Valley/Elberta Subarea. Significant development could take place without impacting existing agricultural land use. Thus Table 3-10 shows an existing and future demand for agricultural water of 40,110 ac-ft based on 13,370 acres irrigated at an existing historical use of 3.0 ac-ft per acre.

Table 3-10 is a summary of calculations for annual municipal water requirements and agricultural water requirements. Yearly requirements are shown in Appendix F. These calculations are based on population projections, the number of equivalent residential connections for indoor and outdoor use, and the assumptions listed in Table 3-2 and 3-4.

OTHER CITIES/SUBAREAS WITHIN THE STUDY AREA

Elk Ridge

Elk Ridge City is in the southwestern part of Utah County south of Salem City, in the foothills of Dry Mountain and Loafer Mountain in the Wasatch Range. The City has an area of 1,806 acres. The Elk Ridge General Plan from 2010 states that at build-out, the City will have annexed up to current adjoining city boundaries and the High Line Canal which would bring the area of the City to 2,033 acres (Mountainland AOG, 2010) as shown on Figure 1-3.

**Table 3-11
Elk Ridge Subarea Water Requirements**

Elk Ridge	Existing (2016)			Future (2060)		
Population	3,287			7,910¹		
Water Distributed within Elk Ridge Subarea Boundary	Annual Volume (ac-ft)	Peak Day Flow (gpm)	Storage (MG)	Annual Volume (ac-ft)	Peak Day Flow (gpm)	Storage (MG)
Indoor Water ²	293	242	0.3	704	582	0.8
Outdoor Water ²	392	784	1.2	947	1,894	2.8
Annual Municipal Requirement	685	1,026	1.5	1,651	2,476	3.7
Agricultural Water ³	0	0	0.0	0	0	0.0
Total Annual Requirement	685	1,026	1.5	1,651	2,476	3.7

¹ Build-out population estimated by Elk Ridge City (Aqua Engineering, 2014).

² Existing Indoor and outdoor municipal water requirement is allocated to the drinking water system. The demand for outdoor use assumes conservation techniques including metering.

³ Agricultural water is used to irrigate agricultural land within the subarea boundary that is not from a municipal water system. The amount of acres irrigated with agricultural water was estimated from the Water Related Land Use Map published annually by Utah DWR.

Elk Ridge is a relatively new city, founded in 1971 with the development of homes on a 1,800 acre ranch. This mostly residential community grew from a population of 771 in 1990 to 2,436 in 2010 (U.S. Census Bureau, 2012). As shown in Table 2-2, the estimated existing population of Elk Ridge City is 3,287 people. By the year 2060, the GOMB projected a population of 8,500 people. According to a city capital facilities plan from 2014, the build-out population is 7,910 people (Aqua Engineering, 2014). In this study future water needs were calculated based on the build-out population

Within the Elk Ridge Subarea, there is less than 10 acres of land irrigated with agricultural water according to the DWR Water Related Land Use Map (DWR, 2016). Thus the amount of agricultural water in Elk Ridge Subarea is considered zero. Agricultural land shown on the City general plan is assumed to practice dry land farming or irrigation through the drinking water system.

Elk Ridge has a public drinking water system that is used for indoor and outdoor water use. As shown in Table 3-11, the City currently uses approximately 685 ac-ft of water. When the population of the City reaches 7,910 people, it is anticipated that the City will use 1,651 ac-ft of water. The peak day flow and storage requirements for existing and future use are also shown in Table 3-11.

Table 3-11 is a summary of calculations for annual municipal water requirements. Yearly requirements are shown in Appendix F. These calculations are based on population projections, the number of equivalent residential connections for indoor and outdoor use, and the assumptions listed in Table 3-2 and 3-4.

Goshen Town

Goshen Town is located in the southern portion of Utah County, south of Utah Lake and west of Santaquin City. Goshen Town covers an area of 525 acres and has experienced some growth in population over the last 20 years. From 1990 to 2010 the population grew from 578 to 921 people (U.S. Census Bureau, 2012). As shown in Table 2-2, the estimated existing population was 981. By the year 2060, the state Governor’s Office projected a population of 1,800 (GOMB, 2012). The Town reported that it provided water to 347 connections in the year 2015 (DWRi, 2017). Currently, however, the town is disallowed by the State to issue building permits until water issues have been addressed.

**Table 3-12
Goshen Subarea Water Requirements**

Goshen	Existing (2016)			Future (2060)		
Population	981			1,800¹		
Water Distributed within Goshen Subarea Boundary	Annual Volume (ac-ft)	Peak Day Flow (gpm)	Storage (MG)	Annual Volume (ac-ft)	Peak Day Flow (gpm)	Storage (MG)
Indoor Water ²	125	103	0.1	229	189	0.3
Outdoor Water ²	167	334	0.5	306	613	0.9
Annual Municipal Requirement	292	437	0.6	535	802	1.2
Agricultural Water ³	7,017	6,041	0	6,404	7,876	0
Total Annual Requirement	7,309	6,478	0.6	6,939	8,677	1.2

¹ Population projections from GOMB (GOMB, 2012).

² Existing indoor and outdoor municipal water requirement is allocated to the drinking water system. The demand for outdoor use assumes conservation techniques including metering.

³ Agricultural water is used to irrigate agricultural land within the subarea boundary that is not from a municipal water system. The amount of acres irrigated with agricultural water was estimated from the Water Related Land Use Map published annually by Utah DWR.

The Town currently uses approximately 292 ac-ft of water for municipal use as shown in Table 3-12. When the population of the Town reaches 1,800 people, it is anticipated that the town will use 535 ac-ft of water in their pressurized water system for municipal use.

Within the Goshen Subarea, approximately 2,339 acres of land is currently being irrigated with agricultural water according to the DWR Water Related Land Use Map (DWR, 2016). Table 3-12

shows an existing demand for agricultural water of 7,017 ac-ft in the Goshen Subarea will be reduced to approximately 6,404 ac-ft in the year 2060.

Table 3-12 is a summary of calculations for annual municipal and agricultural water requirements. Yearly requirements are shown in Appendix F. These calculations are based on population projections, the number of equivalent residential connections for indoor and outdoor use, and the assumptions listed in Table 3-2 and 3-4.

Woodland Hills City

Woodland Hills City is in the southwestern part of Utah County south of Salem City and east of Elk Ridge City, on the slopes of Loafer Mountain in the Wasatch Range. The City has an area of 1,620 acres and became a city in the year 2000. In 1990 Woodland Hills had a population of 301 people growing to 1,344 people in 2010 (U.S. Census Bureau, 2012).

As shown in Table 2-2, the estimated existing population of Woodland Hills is 1,564 people. By the year 2060, the GOMB projected a population of 5,300 people. The City currently uses approximately 342 ac-ft of water for municipal use as shown in Table 3-13. When the population reaches 5,300 people, it is anticipated that the City will use 1,158 ac-ft of water.

Within Woodland Hills Subarea, there is no irrigated agricultural land according to the DWR Water Related Land Use Map (DWR, 2016).

**Table 3-13
Woodland Hills Subarea Water Requirements**

Woodland Hills	Existing (2016)			Future (2060)		
Population	1,564			5,300¹		
Water Distributed within Woodland Hills Subarea Boundaries	Annual Volume (ac-ft)	Peak Day Flow (gpm)	Storage (MG)	Annual Volume (ac-ft)	Peak Day Flow (gpm)	Storage (MG)
Indoor Water ²	146	121	0.2	495	409	0.6
Outdoor Water ²	196	391	0.6	663	1,326	2.0
Annual Municipal Requirement	342	512	0.8	1,158	1,735	2.6
Agricultural Water	0	0	0.0	0	0	0.0
Total Annual Requirement	342	512	0.8	1,158	1,735	2.6

¹ Population projections from GOMB (GOMB, 2012).

² Existing indoor and outdoor municipal water requirement is allocated to the drinking water system. The demand for outdoor use assumes conservation techniques including metering.

Table 3-13 is a summary of calculations for annual municipal water requirements. Yearly requirements are shown in Appendix F. These calculations are based on population projections, the number of equivalent residential connections for indoor and outdoor use, and the assumptions listed in Table 3-2 and 3-4.

UNINCORPORATED UTAH COUNTY

Benjamin/Lake Shore Subarea

For the purpose of this study, the unincorporated area in southern Utah County west of Salem City and Spanish Fork City is called the Benjamin/Lake Shore Subarea as shown in Figure 1-3. This unincorporated area generally consists of farms east of Utah Lake and west of Interstate 15. The Benjamin/Lake Shore Area includes the communities of Benjamin and West Mountain and parts of the communities of Palmyra and Lake Shore that are within the MNWA study area. The Benjamin/Lake Shore Subarea is about 16,716 acres. These communities are listed in the 2010 U.S. Census as census designated areas. For example, the Benjamin area appeared on the 2000 U.S. Census with a population of 1,029 people that increased to 1,145 people in the 2010 U.S. Census (U.S. Census Bureau, 2012). With only part of the census designated communities in the Benjamin/Lake Shore Subarea, however, a different approach was needed to estimate population in this unincorporated area.

Current aerial photography of the area was used to estimate the number of households in the Benjamin/Lake Shore Subarea. The number of households was multiplied by the average population of the area per household, 3.6 people per household, to estimate an existing population of 2,573 people. This number was used to project a population of 18,025 people in the year 2060 using growth rates for unincorporated Utah County from GOMB projections (GOMB, 2012).

**Table 3-14
Benjamin/Lakeshore Water Requirements**

Benjamin/Lakeshore	Existing (2016)			Future (2060)		
Population	2,573			18,025¹		
Water Distributed within Benjamin/Lakeshore Subarea Boundaries	Annual Volume (ac-ft)	Peak Day Flow (gpm)	Storage (MG)	Annual Volume (ac-ft)	Peak Day Flow (gpm)	Storage (MG)
Indoor Water ²	240	198	0.3	1,682	1,391	2.0
Outdoor Water ³	322	643	1.0	2,253	4,505	6.8
Annual Domestic Requirement	562	842	1.3	3,935	5,896	8.8
Agricultural Water ⁴	31,830	39,145	0.0	23,333	28,695	0.0
Total Annual Requirement	32,392	39,987	1.3	27,268	34,591	8.8

¹ Population projections from estimates using current satellite mapping data.

² Indoor water requirement is allocated to domestic indoor use from private wells or springs.

³ Outdoor water requirement is allocated to domestic outdoor use from private wells or springs. The demand for outdoor use assumes conservation techniques including metering.

⁴ Agricultural water is used to irrigate agricultural land within the subarea boundary that is not from private wells or springs for domestic use. The amount of acres irrigated with agricultural water was estimated from the Water Related Land Use Map published annually by Utah DWR.

Based on population estimates, the Benjamin/Lake Shore Subarea currently uses approximately 562 ac-ft of water for domestic indoor and outdoor use as shown in Table 3-14. When the population of the area reaches about 18,000 people, it is anticipated that 3,935 ac-ft of water will be required to meet domestic water needs in this area.

Within the Benjamin/Lakeshore Subarea, approximately 10,610 acres of land is currently being irrigated with agricultural water according to the DWR Water Related Land Use Map (DWR, 2016). Table 3-14 shows an existing demand for agricultural water of 31,830 ac-ft in the Benjamin/Lake Shore Subarea will decrease to approximately 23,333 ac-ft in the year 2060. This is based on the assumption that the amount of irrigated acres will decrease in relation to population growth.

Table 3-14 is a summary of calculations for annual water requirements. Yearly requirements are shown in detail in Appendix F. These calculations are based on population projections, the number of equivalent residential connections for indoor and outdoor use, and the assumptions listed in Table 3-2 and 3-4.

Wetlands Subarea

The Wetlands Subarea consists of unincorporated land bordering Utah Lake that has been designated as part of the Utah Lake Wetlands Preserve. As previously described, the Preserve consists of two areas: Goshen Bay and Benjamin Slough. Land within the Preserve is protected from development under federal and state law. The Wetlands Subarea consists of 16,782 acres of land of which a small amount, 909 acres, is designated as irrigated acres (DWR, 2016).

As shown in Table 3-15, the estimated existing and future population of the Wetlands Subarea is zero. There is also no industrial water use or potential for development due to the regulated protections on the Preserve. The only water requirement for the Wetlands Subarea is agricultural water demand.

**Table 3-15
Wetlands Water Requirements**

Wetlands	Existing (2016)			Future (2060)		
Population	0			0		
Water Distributed within the Wetlands Subarea Boundary	Annual Volume (ac-ft)	Peak Day Flow (gpm)	Storage (MG)	Annual Volume (ac-ft)	Peak Day Flow (gpm)	Storage (MG)
Agricultural Water ¹	2,727	3,354	0	2,727	3,354	0
Total Annual Requirement	2,727	3,354	0	2,727	3,354	0

¹Agricultural water is used to irrigate agricultural land within the subarea boundary that is not from private wells or springs for domestic use. The amount of acres irrigated with agricultural water was estimated from the Water Related Land Use Map published annually by Utah DWR.

Within the Wetlands Subarea, approximately 909 acres of land is currently being irrigated with agricultural water according to the DWR Water Related Land Use Map (DWR, 2016). Table 3-15 shows an existing and future demand for agricultural water of 2,727 ac-ft in the Wetlands Subarea. It is assumed the amount of irrigated acres will remain the same.

Table 3-15 is a summary of calculations for annual water requirements which is the agricultural water requirement for the Wetlands Subarea. These calculations are based on the amount of irrigated acres and the agricultural water assumptions shown in Table 3-2.

WATER REQUIREMENTS SUMMARY

The total existing and future demand for water in the MNWA study area is summarized in Table 3-16 below. Existing and future municipal water requirements were calculated from ERCs considering actual demand from historical use data, population projections, and State requirements, and applying best practice engineering assumptions. Municipal demand includes indoor and outdoor watering through municipal water systems. Agricultural demand is water used to irrigate that is not from a municipal water system. The amount of agricultural water used in each subarea was calculated from the number of irrigated acres in each subarea as shown on the Water Related Land Use Map published annually by the Utah Division of Water Resources at DNR. The volume of water used to irrigate existing and future agricultural land was calculated by a rate based on an evaluation of cropping patterns and consumptive use within the study area. Demand for agricultural water is expected to decrease in future years for subareas where development of existing agricultural land is assumed to occur. Consequently, demand for municipal water is expected to increase in these areas.

**Table 3-16
Water Requirements Summary**

SUBAREA	DEMAND					
	Municipal ¹ (ac-ft)		Agricultural ² (ac-ft)		Total Municipal and Agricultural Demand (ac-ft)	
	Existing	Future	Existing	Future	Existing	Future
Benjamin/Lakeshore	562	3935	31,830	23,333	32,392	27,268
Elk Ridge	685	1651	0	0	685	1,651
Genola	389	2510	12,798	7,316	13,187	9,826
Goshen Town	292	535	7,017	6,404	7,309	6,939
Goshen Valley/Elberta ³	110	15,596	40,110	40,110	40,220	55,706
Payson ⁴	6,800	16,645	30,540	9,522	37,340	26,167
Salem	1774	9,867	10,584	2,399	12,358	12,266
Santaquin	2,684	11,316	10,491	2,637	13,175	13,953
Spanish Fork	9,805	19,114	20,844	4,057	30,649	23,171
Wetlands	0	0	2,727	2,727	2,727	2,727
Woodland Hills	342	1158	0	0	342	1,158
Total MNWA Area	23,443	82,327	166,941	98,506	190,384	180,833

¹ See Water Requirement spreadsheets for each subarea. The demand for outdoor use assumes conservation techniques including metering.

² Agricultural water is water used to irrigate that is not from a municipal water system. The agricultural demand is based on the irrigated acreage shown in the Water Related Land Use Map published annually by the Utah DWR and a water requirement of 3.0 ac-ft per acre.

³ Goshen Valley/Elberta future demand includes 10,000 ac-ft of future large industrial use.

⁴ Payson total municipal water requirements for existing and future demand include 1,681 ac-ft of demand for Nebo Power Plant.

CHAPTER 4 – EXISTING FACILITIES AND WATER RIGHTS

The MNWA study area population is served by several public water suppliers. Nine of the twelve subareas shown on Figure 1-2 have cities or towns that have water systems, some with separate drinking water and secondary water systems, that provide water within their city and town boundaries shown on Figure 1-3. Goshen Valley Local District (GVLD) serves the community of Elberta and was organized to potentially serve industrial development and rapid population growth in the future. The boundaries of GVLD are also shown on Figure 1-3.

HAL visited with representatives of each MNWA member city, Goshen Valley Local District, and other cities and towns in the MNWA study area to gather information about existing water distribution infrastructure. Other small public water suppliers exist within the MNWA study area and some of them are mentioned with the cities near their service boundaries. Other very small systems are not individually addressed in this study.

The following sections include a summary of the existing capacity of the infrastructure owned and maintained by public water suppliers in the MNWA study area. To account for the capacity of springs, the lowest annual flow was used. The annual volume capacity for all secondary water sources assumed use for 180 days during the irrigation season. The annual volume capacity for underground water wells was determined based on operation information provided by the public water supplier.

Existing canal dimensions for primary irrigation companies operating within the MNWA study area were also evaluated as part of the regions existing facilities.

In addition to a summary of existing facilities, significant water right information for the MNWA study area was gathered and summarized by subarea to provide another tool for evaluating water resources.

MNWA MEMBER CITIES AND TOWNS

Genola Town

Genola Town has a public drinking water system. The source of this water comes from one underground well and a spring owned by Santaquin City. According to the Town's annual report to the DWRi, some individual connections to their system include orchards, dairy farms, and stock farms. Many farmers and residents in the area maintain their own piped irrigation systems that connect to SHLCC ponds but the Town does not maintain a pressurized irrigation system. A summary of capacity is shown in Table 4-1 and in more detail in Appendix G.

Sources – The Town well is located at 6231 Lark Road within the west boundary of Santaquin City. The capacity of the well is 750 gpm. The annual production assumes it was run at design capacity 21 hours a day for 300 days out of the year.

By court decree, Genola has the right to 100 gpm of water year-round from Santaquin from Gravity Springs. Gravity Springs has a flow capacity of about 900 gpm and has not showed fluctuation with dry and drought conditions.

**Table 4-1
Genola Town Summary of Existing Capacity**

Genola Town	CAPACITY		
	Existing 2016		
	Annual Volume (ac-ft)	Flow (gpm)	Storage (MG)
Indoor /Outdoor Water	1,031	850	0.5

Storage – Genola has one steel storage tank that holds 0.5 MG of water. The tank is above ground and is located at 1069 E Cummorah Drive.

Payson City

Payson City provides water to Payson residents through a public drinking water system and pressurized irrigation system. Payson City relies on springs and underground wells for its drinking water. Payson City’s pressurized irrigation system receives water from Peteetneet Creek, wells, springs, Strawberry High Line Canal, and Spring Lake. A summary of capacity is described below and shown in Table 4-2. More detail is provided in Appendix G.

Sources – Drinking water sources for Payson consist of springs and wells. Canyon Springs include seven springs in Payson Canyon, five upper and two lower. The combined capacity of Canyon Springs is about 700 gpm.

Two other springs in the Payson City Subarea, currently owned by other public water suppliers, include Dixon Spring and Picayune Spring. These springs were not included as sources for Payson City or in the source capacity summary in Table 4-2. Dixon Spring located on the east boundary of Payson City is owned by Gooseneck Water Company. The spring serves some residents in Elk Ridge, Payson and an unincorporated area. The capacity of Dixon Spring is about 52 gpm. Picayune Spring is owned by Spring Lake Water Works Company and serves the Spring Lake area just south of Payson City. In normal water years, Picayune produces 60-80 gpm. Due to drought conditions this flow slowly decreased to 10 gpm by 2015.

Payson City’s drinking water system currently uses two wells as sources: Well No. 2 (same as Fair Grounds Well), capacity of 2,000 gpm, and Well No. 5 (same as Well No. 3) with a capacity of 1,200 gpm. The estimated annual volume produced by the wells is based on pumping 21 hours per day design capacity for 365 days. Well No. 1 is also now approved for drinking water use but is primarily used for irrigation. The capacity of Well No. 1 was included as outdoor water in Table 4-2.

Payson’s pressurized irrigation system relies on surface water and underground wells. Well No. 4 and Well No. 1 each have a capacity of 1,500 gpm. The estimated annual volume produced by these wells is based on pumping 21 hours per day at capacity for 180 days. Payson has access to the Strawberry High Line Canal at the Lower Pond turnout. The turnout has a capacity of about 8,080 gpm. The City also owns and maintains a pipe from Spring Lake with a capacity of 2,400 gpm. Payson’s waste water treatment plant delivers up to 2,000 gpm of reclaimed wastewater to the Nebo Power Plant. The waste water treatment plant Type 1 reuse water can be put into the

pressurized irrigation system as well as open ditches for use in the “Old Field” area of the city, land historically irrigated by the Old Field Water Users Association but now supplied by Payson City.

The City also has the capacity in its secondary water system to divert about 714 ac-ft of water per year from Peteetneet Creek in Payson Canyon. Some of this water is conveyed to irrigate Payson City Golf Course. The remaining water is conveyed to a power plant owned by SWUA. After leaving the SWUA Power Plant, much of the water is diverted to a pond called Upper Pond, for use in the City’s pressurized secondary water system. Depending on the time of year and availability, some water is allowed to flow into an open ditch system to serve the areas historically served by Old Field Water Users Association.

**Table 4-2
Payson City Summary of Existing Capacity**

Payson City	CAPACITY		
	Existing 2016		
	Volume (ac-ft)	Flow (gpm)	Storage (MG)
Indoor Water	5,646	3,900	5.6
Outdoor Water	14,364	16,378	323.1
Total	20,010	20,278	328.7

Storage – Payson City has three water storage tanks in its drinking water system with capacities ranging from 0.6 MG to 2.5 MG for a combined storage capacity of 5.6 MG.

Lower Pond at the mouth of Payson Canyon and Upper Pond in Payson Canyon have a capacity of about 10 MG each. Both ponds are used as storage for the secondary water system. The City also has storage rights for secondary water storage in several lakes in Payson Canyon including Big East Lake, Winward (Pete) Reservoir, Box Lake, Maple Lake, McClellan Lake, Dry Lake and Red Lake. The lakes have a combined capacity of about 297 ac-ft.

Salem City

Salem City provides drinking and irrigation water through separate drinking water and pressurized irrigation systems. Salem’s drinking water sources include two springs and two underground water wells. Water from these sources is collected and stored at five storage sites. The source of water for the pressurized irrigation system is the Strawberry High Line Canal. This water is delivered through two canal turnouts into storage ponds adjacent to the Canal. A summary of capacity is shown in Table 4-3 with more detail provided in Appendix G.

Sources – The City’s springs, Water Canyon Upper and Lower Springs, are located in Water Canyon above the Water Canyon Springs Tank. Water Canyon Upper Spring has produced from 50 to 300 gpm, depending on the hydrologic conditions. The City reported that in October 2016, the spring was producing at its lowest level of around 50 gpm. Water Canyon Lower Spring produced from 200 to 1,000 gpm. The lowest flow discharge of the springs was used to determine the City’s existing water source capacity and is included in Table 4-3.

Storage Tank Well and Maple Canyon Well also provide water to Salem’s drinking water system. Storage Tank Well, also known as Well Number 1 is next to two of the City’s water storage tanks, Main Tanks 1 and 2. Storage Tank Well has a capacity of 2,500 gpm.

Maple Canyon Well, also known as Well Number 2, is located in Maple Canyon on the southeast edge of the Salem City boundary near Woodland Hills. Maple Canyon Well is jointly owned and operated with Woodland Hills. The well has a pumping capacity of 1,750 gpm of which Salem City owns 60 percent, for a flow capacity of 1,050 gpm. Annual production estimates for the wells are based on pumping 21 hours per day at their design capacity for 365 days.

The SHLCC provides water to Salem City’s pressurized irrigation system. The City receives water from two turnouts.

**Table 4-3
Salem City Summary of Existing Capacity**

Salem City	CAPACITY		
	Existing 2016		
	Volume (ac-ft)	Flow (gpm)	Storage (MG)
Indoor Water	5,414	3,800	2.5
Outdoor Water	11,136	14,000	6.5
Total Annual Demand	16,550	17,800	9.0

Storage – Salem City has five water storage tanks in its drinking water system with capacities ranging from 0.3 mg to 0.75 mg. One of these tanks, Maple Canyon Tank, is jointly owned with Woodland Hills. Maple Canyon Well sends water to Maple Canyon Tank and Cemetery Storage Tank which is located south of the Salem Cemetery. As the names suggest, the springs in Water Canyon feed Water Canyon Springs Tank. Storage Tank Well feeds the two tanks off of Woodland Hills Drive, Main Storage Tanks 1 and 2.

Two ponds adjacent to the Strawberry High Line Canal provide regulating storage for the pressurized irrigation system. The ponds have a combined storage capacity of 6.5 mg as shown in Table 4-3.

Santaquin City

Santaquin City has a pressurized drinking water system and a pressurized irrigation system. Drinking water sources maintained and operated by the City include several springs and underground wells with storage in four water tanks. The City’s pressurized irrigation system receives water from a spring, underground wells and Summit Creek with storage in Ahlin Pond. A summary of capacity is shown in Table 4-4. More detail is provided in Appendix G.

Sources – The City’s drinking water sources include Gravity Springs which is a group of four springs (Numbers 2-5). Gravity Springs has a flow capacity of about 900 gpm and has not showed fluctuation with dry and drought conditions. By court decree, Genola Town has the right to 100 gpm of water year-round from Santaquin’s Gravity Springs which leaves a capacity of 800 gpm to the City.

City drinking water sources also include two wells. Cemetery Well has a flow capacity of 660 gpm and is located on the southeast corner of the City cemetery. Summit Ridge Well has a flow capacity of 2,625 gpm and is located in the southwest area of the City near Summit Creek Reservoir Two. Estimates of annual production for the drinking water wells are based on pumping 21 hours per day at design capacity for 300 days.

The City’s pressurized irrigation system sources include surface and underground water sources. The City receives surface water from Summit Creek through Summit Creek Irrigation Company (SCIC). The water flows by gravity down Santaquin Canyon and is diverted into Ahlin Pond and into the City’s pressurized irrigation system (JUB Engineers, 2013). Ahlin Pond is the City’s pressure irrigation regulating pond near the mouth of Pole Canyon. Two SCIC wells located in the center of Santaquin are available to pump directly into the City’s pressurized irrigation system or to Ahlin Pond as needed. The capacity of these water sources is about 800 ac-ft per irrigation season. Capacity available to the City is limited by SCIC using their wells during dry summer months to supply water to their shareholders.

Spring Number 1 is used by the City during the irrigation season in its pressurized irrigation system. The spring discharges into Ahlin Pond during the irrigation season and is diverted into the creek bed during the winter. The spring is located in Santaquin Canyon near the Summit Creek Irrigation Company Diversion. Average flow from the spring ranges from 80 to 100 gpm. Flows in the spring can reach as much as 150 gpm but the high flow is influenced by high water during the run off. The low average spring discharge was used to determine the City’s existing water source capacity.

Santaquin has also required the use of City owned underground wells to provide water in dry years to the pressurized irrigation system. Wells include Eastside Well and Center Street Well. Eastside Well has a flow capacity of 320 gpm and is located on the east edge of the City but is not currently used due to high concentrations of heavy metals. Center Street Well has a flow capacity of 560 gpm and is near the center of the City. Center Street Well was formerly a drinking water well that was connected to the pressurized irrigation system and could be converted back to drinking water. The annual production for these water wells is estimated on pumping 21 hours per day at design capacity for 180 days.

Cemetery Well and Gravity Springs, which provide water to the City drinking water system, have also been providing some water to the Santaquin’s pressurized irrigation system by using backflow preventers. The capacity for these sources, however, was considered for indoor use only in Table 4-4.

Santaquin City has converted their former sewer lagoon ponds to storage ponds to facilitate wastewater reuse. In addition to an approved wastewater reuse application, Santaquin also has an approved recharge application that could use treated wastewater effluent as the source. Recharge facilities currently do not exist, thus potential recharge capacity is not included in Table 4-4.

**Table 4-4
Santaquin City Summary of Existing Capacity**

Santaquin City	CAPACITY		
	Existing 2016		
	Volume (ac-ft)	Flow (gpm)	Storage (MG)
Indoor Water	5,101	4,085	3.8
Outdoor Water	1,476	1,966	13.7
Total Annual Demand	6,577	6,050	17.5

Storage – Santaquin has four water storage tanks in its drinking water system with capacities ranging from 0.49 MG to 1.14 MG and a total capacity of 3.76 MG that is considered indoor water in Table 4-4. Three of these tanks, are also used to provide water to areas of the City that cannot be served by surface water sources.

Ahlin Pond provides storage for the water the City uses in its pressurized irrigation system. The pond has a storage capacity of 13.69 MG which is shown in Table 4-4. Summit Creek Irrigation Company (SCIC) reservoirs are not included in Table 4-4. Although some infrastructure exists for SCIC Reservoir Number 2 to serve as storage for the City’s pressurized irrigation system, more infrastructure would be needed. In addition, an operation agreement with the irrigation company would be required.

Spanish Fork City

Spanish Fork City has a drinking water system and a pressurized irrigation system. Sources of water for Spanish Fork City include springs, underground wells, and the Spanish Fork River. A summary of capacity is shown in Table 4-5 and in more detail in Appendix G.

Sources – Average flow and annual volume calculations for the springs and river sources are based on the capacity of the source facilities. The annual volume assumes a percentage utilized for the year. The spring sources that do not rely on pumps are assumed to have 100 percent utilization. Pressurized irrigation sources are assumed to be used only during the irrigation season, April 1 through October 31. Drinking water sources that rely on pumps are assumed to have 75 percent utilization. Table 4-5 shows the combined capacity of these sources.

The City currently uses four springs for municipal use: Crab Creek Spring, Cold Springs, Malcolm Spring, and Darger Spring. The low flow for each spring was used as the flow capacity shown in Table 4-5. The annual production for each spring was calculated based on the use and pumping capability at some springs. Flow of water year-round from Crab Creek Spring and Cold Springs Drain does not rely on pumps and is assumed to have 100 percent utilization for indoor use. Cold Springs Pump Station and Malcolm Springs are drinking water sources that rely on pumps and are assumed to have 75 percent utilization. Darger Springs is pumped to the pressurized irrigation system and is only used during the irrigation season, April 1 through October 31. Annual production estimates for this spring assume 50 percent utilization. Darger Springs was included as outdoor water on Table 4-5.

The City currently uses seven wells to provide water for municipal use including Cemetery Well #1 and #2, Memorial Well, Fairgrounds Shop Well, Canyon Road Well, Canyon Elementary Well, and Ensign-Bickford Well R1. Canyon Road Well and Canyon Elementary Well are approved for drinking water use but are primarily used for irrigation. The capacity of Canyon Road Well was included as indoor water and all of the other wells were included as outdoor water in Table 4-5.

The City also diverts water from canal turnouts on the Spanish Fork River for its pressurized irrigation system. Several turnouts are maintained by the City and the river water is brought to Golf Course Storage Pond where it can be pumped to the pressurized irrigation system. The wells and river water are primarily used for irrigation. Fifty percent utilization was assumed to estimate the annual yield of these sources.

Table 4-5 shows the total capacity of each source of water used in Spanish Fork City's pressurized systems.

**Table 4-5
Spanish Fork City Summary of Existing Capacity**

Spanish Fork City	CAPACITY		
	Existing 2016		
	Annual Volume (ac-ft)	Flow (gpm)	Storage (MG)
Indoor Water	13,050	10,200	11.25
Outdoor Water	10,040	11,400	32.90
Total	23,090	21,600	44.2

Storage – The City's drinking water system currently includes three storage facility locations, each with two storage tanks. The highest storage tanks are two 125,000 gal tanks that serve the upper pressure zone in the foothills area near the mouth of Spanish Fork Canyon. A 5 MG and 3 MG tank are located in Spanish Fork Canyon above Cold Springs in Sterling Hollow. These tanks serve the intermediate pressure zone. The lowest two storage tanks, a 1 and 2 MG tank, are located at the mouth of Spanish Fork Canyon and serve the lower pressure zone. Spanish Fork City uses two ponds for irrigation water storage. These include Spanish Oaks Reservoir and Golf Course Pond for a combined total volume of 32.9 MG.

GOSHEN VALLEY LOCAL DISTRICT

GVLD is designated as a public water supplier and service area. GVLD currently leases a well from a private owner that provides drinking water to the Elberta Water Company. Other than this service, there are currently no other municipal demands on the system. Infrastructure in this area is limited but in place for future development as described in the previous discussions of Goshen Valley in this report and as described in the Goshen Valley Specific Area Plan (Fregonese Associates, 2016). GVLD's source for drinking water is an underground aquifer accessed by the leased well. A summary of capacity is shown in Table 4-6 and in Appendix G.

Sources – GVLD drinking water source is Eva #1 Well, a deep well drilled within GVLD boundaries. Eva #1 Well has a flow capacity of 2,000 gpm. Annual production capacity for the well is based on the well pump pumping 21 hours per day at its design capacity for 200 days.

**Table 4-6
Goshen Valley Local District Summary of Existing Capacity**

Goshen Valley Local District	CAPACITY		
	Existing 2016		
	Volume ¹ (ac-ft)	Flow (gpm)	Storage ² (MG)
Indoor Water/ Outdoor Water	1,500	2,000	0.3

¹ Goshen Valley Local District leases a well from a private owner which accounts for this capacity.

² Elberta Water Company has two tanks that have a combined capacity of 0.29 MG.

OTHER CITIES WITHIN THE STUDY AREA

Elk Ridge City

Elk Ridge City is a public water supplier that has a drinking water system that serves both indoor and outdoor needs of its users. The source of water for the City’s system is an underlying aquifer. Currently this aquifer is accessed by two existing wells owned by the City. A third well, Northeast Well, has already been drilled and tested to serve the city in the future but was not included as an existing source. A summary of capacity is shown in Table 4-7 and in more detail in Appendix G.

Sources – Elk Ridge City maintains and operates Loafer Canyon Well and High Line Well, also known as Cloward Well. Loafer Canyon Well is located within City boundaries in Loafer Canyon with a capacity of 500 gpm. High Line Well is located near the north boundary of the City with a capacity of 1200 gpm (Elk Ridge City, 2016). The estimated annual production of the wells assumes they run at design capacity 21 hours a day for 300 days out of the year.

Goosenest Water Company owns and operates Shuler Well located just outside Elk Ridge City boundaries. This well currently serves a few homes that have been annexed into Elk Ridge City. Shuler Well has a capacity of 55 gpm but is not included in Table 4-7.

**Table 4-7
Elk Ridge City Summary of Existing Capacity**

Elk Ridge City	CAPACITY		
	Existing 2016		
	Volume (ac-ft)	Flow (gpm)	Storage (MG)
Indoor/ Outdoor Water	2,036	1,755	2.0

Storage – Elk Ridge currently owns and maintains three tanks. Two of the tanks, Upper Tank and Hillside Tank, hold 0.5 MG each. The third tank, Fairway Tank, holds 1.0 MG.

Goshen Town

Goshen Town is a public water supplier. The water system has two sources of water including Ercanbrack Spring in Goshen Canyon and Goshen Town Well. A summary of capacity is shown in Table 4-8 and in more detail in Appendix G.

Sources – Ercanbrack Spring is free flowing and historically has been the main source of water for the Town. The spring flows as much as 400 gpm but as low as 200 gpm in the summer. The low flow rate for Ercanbrack Spring is assumed in Table 4-8. Water quality issues in recent years, however, have periodically prevented use of the spring for drinking water. Water quality issues require the Town to construct a new chlorinator and possibly a water treatment plant depending on the outcome of ongoing water testing by the State.

Goshen Town Well is located within the town and has a capacity of about 250 gpm. Although the Town prefers to use Ercanbrack Spring, the Town has had to rely solely on their well at times due to contamination issues in recent years at the spring. The annual production at the well assumes it was run at design capacity 21 hours a day for 365 days out of the year.

**Table 4-8
Goshen Town Summary of Existing Capacity**

Goshen Town	CAPACITY		
	Existing 2016		
	Volume (ac-ft)	Flow (gpm)	Storage (MG)
Indoor Water/ Outdoor Water	675	450	0.8

Storage – Goshen has two drinking water storage tanks that have a combined capacity of 0.75 MG. The tanks fill from Ercanbrack Spring and draw upon Goshen Town Well as needed. Overflow from the Spring can be diverted to two secondary tanks known as Cemetery Tank and Ball Field Tank which hold less than 250,000 gal of water altogether and are used to water Goshen Town Cemetery and Ball Field. When this tank is dry in the summer months, the cemetery and ball field do not receive water. Water exceeding the capacity of these tanks is released into the stream.

Woodland Hills City

Woodland Hills City’s water system serves both indoor and outdoor needs of its users. The source of water for the City’s water system is an underlying aquifer accessed by wells. A summary of capacity is shown in Table 4-9 and in more detail in Appendix G.

Sources – Woodland Hills currently uses one well to supply its drinking water system. Maple Canyon Well is located in Maple Canyon on the boundary between Woodland Hills and Salem City. Maple Canyon Well is jointly owned and operated with Salem City. The well has a pumping capacity of 1,750 gpm of which Woodland Hills City owns 40 percent, for a flow of 700 gpm. The annual production of the well assumes it runs at design capacity 21 hours a day for 300 days out of the year.

Woodland Hills owns and maintains Lower Well 1 (capacity of 140 gpm) and Lower Well 2 (capacity of 40 gpm). These wells are located at the lower end of the City. These wells are currently not being used due to the expense of pumping but could be used in an emergency. They have been included in Table 4-9. A new well with a design capacity of 500 gpm is being developed but has not been included in Table 4-9.

Shockey’s Spring has been a source for Woodland Hills City water system previously, but was covered by a landslide and has not been redeveloped.

**Table 4-9
Woodland Hills City Summary of Existing Capacity**

Woodland Hills City	CAPACITY		
	Existing 2016		
	Volume (ac-ft)	Flow (gpm)	Storage (MG)
Indoor Water/ Outdoor Water	1,021	880	0.3

Storage – Woodland Hills jointly owns and operates Maple Canyon Tank with Salem City. The tank holds 0.75 MG of which Woodland Hills owns 40 percent or 0.3 MG. This is the only water storage facility for the City.

UNINCORPORATED UTAH COUNTY

Benjamin/Lake Shore Subarea

The Benjamin/Lake Shore Subarea includes several unincorporated farming communities within the MNWA study area as shown on Figure 1-3. Residents in this unincorporated area are not currently served by a municipal public water supplier. As with other unincorporated areas that are part of this study, the capacities of private water systems were not specifically evaluated.

CENTRAL UTAH PROJECT EXISTING FACILITIES

The Central Utah Project (CUP) is the largest and most complex water resources development project undertaken by the U.S. Bureau of Reclamation (Reclamation) in the state of Utah. Reclamation-wide, the CUP is not the largest project, but the initial plans for the CUP were among the most complex especially given the amount of water the project was originally intended to deliver. (U.S. Department of the Interior, Central Utah Project Completion Act Office)

The CUP was officially authorized by Congress for construction in 1956 under provisions of the Colorado River Storage Project (CRSP) Act (43 USC 620). Because of its size and complexity, Reclamation divided the CUP into six units to facilitate planning and construction: Vernal, Jensen, Bonneville, Upalco, Ute Indian, and Uintah. (U.S. Department of the Interior, Central Utah Project Completion Act Office)

Over the decades since the CUP's authorization, the changing political climate, budget priorities, and emerging environmental concerns have resulted in many changes to the project. The purpose and components of the Bonneville Unit have evolved; and the passage of the Central Utah Project Completion Act in 1992 has altered the planning, oversight, and areas of responsibility for the Bonneville Unit. (U.S. Department of the Interior, Central Utah Project Completion Act Office)

The Bonneville Unit collects and distributes water in both the Uintah Basin of eastern Utah, and the Bonneville Basin of central Utah. The Bonneville Unit provides water for irrigation and municipal and industrial uses. In addition, Bonneville Unit systems provide water for maintenance of aquatic habitats in natural streams, open water recreation, and flood control. For purposes of planning and construction the Bonneville Unit itself was divided into component systems. Working together, the systems develop, store, and transport water resources for the benefit of the people of Utah. (U.S. Department of the Interior, Central Utah Project Completion Act Office)

The Utah Lake Drainage Basin Water Delivery System (ULS) will complete the Bonneville Unit. It is the last link in the complex system of dams, reservoirs, pipelines and tunnels that will bring water from eastern Utah's Colorado River basin to populous Wasatch Front cities including Salt Lake City to the north and south to Utah County cities. The ULS System consists of buried pipelines extending from the terminus of the Diamond Fork System at the mouth of Diamond Fork Canyon in Utah County, down the Spanish Fork Canyon to the western side of the Wasatch Mountains. From there a series of pipelines will travel both north and south to deliver water to CUP customers. This system will deliver 101,900 ac-ft of CUP water for irrigation and municipal and industrial uses to Utah communities. (U.S. Department of the Interior, Central Utah Project Completion Act Office) The Spanish Fork-Santaquin Pipeline (under construction) will deliver water to communities within the Mt. Nebo Water Agency. Locations and capacities of ULS pipelines are shown in Figure 4-1.

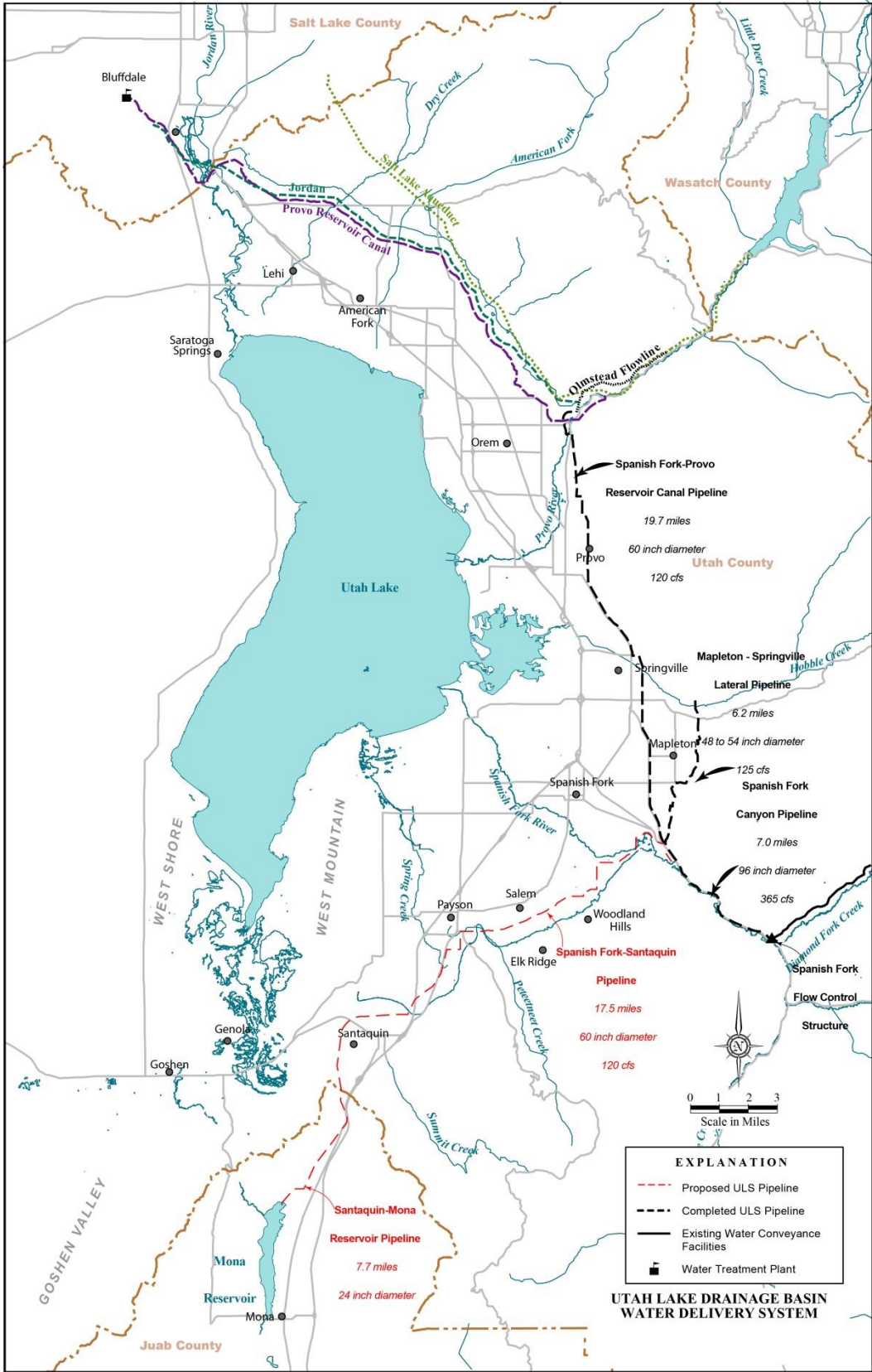


Figure 4-1: Utah Lake Drainage Basin Water Delivery System (U.S. Department of the Interior, Central Utah Project Completion Act Office)

STRAWBERRY VALLEY PROJECT EXISTING FACILITIES

The Strawberry Valley Project (SVP) comprises about 45,000 irrigable acres centered around Spanish Fork, Utah. This project provided the first large-scale transmountain diversion from the Colorado River Basin to the Bonneville Basin. It also was one of the earliest USBR projects to develop hydroelectric energy. Project features include Strawberry Dam and Reservoir, Indian Creek Dike, Strawberry Tunnel, two diversion dams, three power plants, a main canal system, and a portion of the lateral system. The remainder of the distribution system was privately constructed. Two of the power plants were constructed by the Strawberry Water Users Association (SWUA). (Reclamation)

Settlers began irrigating the lower part of the Utah Valley on the south side of the Spanish Fork River and the area adjacent to Utah Lake on the north side of the river prior to 1860. The low summer flow of the river limited development of the irrigable land, and the need for supplemental storage was evident long before 1900. (Reclamation)

Excavation of the Strawberry Tunnel was started in 1906 and completed in 1912. Construction of the Spanish Fork Diversion Dam, Strawberry Power Canal, and Upper Spanish Fork Power Plant was completed in 1908. Electric power from these facilities was used at the Strawberry Tunnel and Dam during construction. Construction of Indian Creek Dike and Feeder Canal was completed in September 1912 and Strawberry Dam was finished in 1913. The High Line Canal and distribution system of approximately 77 miles, of which about 62 miles are concrete lined, was completed in 1916 and the Springville-Mapleton Lateral was completed in 1918. The entire project was completed by June 30, 1922. (Reclamation)

The irrigation water is diverted from the Colorado River Basin to the Bonneville Basin. Water is stored in Strawberry Reservoir on the Strawberry River, a tributary of the Green River. The reservoir also receives water through feeder canals from Indian Creek, Trail Hollow Creek, and Currant Creek. The stored water is diverted into Bonneville Basin through the 3.8-mile Strawberry Tunnel under the Wasatch Divide. The water is discharged into Diamond Fork, a tributary of the Spanish Fork River, and diverted into the Strawberry Power Canal, which supplies the Springville-Mapleton Lateral to the north, the High Line Canal system to the south, the Upper and Lower Spanish Fork Power Plants, and the older privately built distribution system. (Reclamation)

With development of the CUP's Bonneville Unit, Strawberry Reservoir was enlarged to approximately four times its original capacity by constructing a new, higher dam on the Strawberry River. The reservoir is now a CUP project feature. A new water delivery tunnel and aqueduct system from Strawberry Reservoir was also constructed along with rehabilitation of the historic Strawberry Tunnel. In 1991, an operating agreement was executed among the SWUA, CUWCD, and the USBR. The agreement defines parameters related to the coordinated operation of SVP and CUP facilities. Under the agreement Strawberry Reservoir and the tunnel delivery system are operated by the CUWCD. The agreement also provides for annual delivery of 61,000 ac-ft of SVP water with a 50,000 acre-foot bank in Strawberry Reservoir for carry over storage of unused water. Locations of SVP facilities are shown in Figure 4-2.

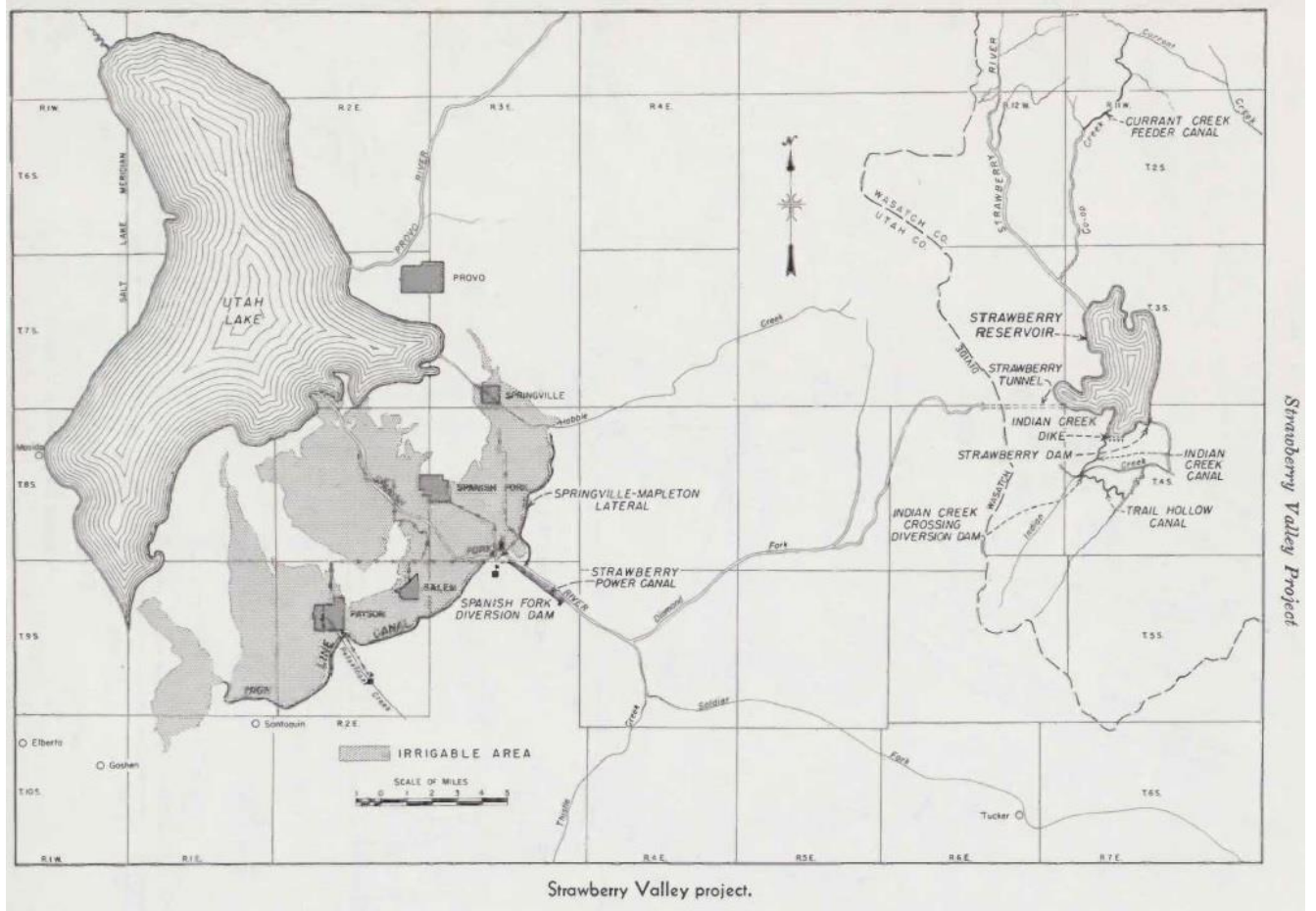


Figure 4-2: Strawberry Valley Project (LeBaron, 2013)

IRRIGATION COMPANY EXISTING FACILITIES

Irrigation companies that operate and have infrastructure within the MNWA study area are listed in Table 4-10. Service areas of some of the larger companies are shown on Figure 4-3 with the locations of some of their main canals or pipelines. In addition to canals and pipelines, irrigation company facilities may include underground water wells and storage ponds. Table 4-10 is a summary of surface diversion capacity. The canal diversion capacity listed in the table for each company is the maximum amount of flow a canal company can carry from the point of diversion. Canal length listed includes the length in feet of the main channels of each canal company. For companies with mapped canal alignments, lengths were measured using GIS tools. For companies where canals were not mapped, lengths were estimated assuming an average amount of length per acre of service area.

A few small irrigation companies operating within the MNWA study area are not listed on Table 4-10. These companies include Mt. Loafer Irrigation Company, Lakeside Irrigation Company, and Holladay Field & Ditch Company. A limited amount of information was found on these companies.

Some irrigation companies listed in Table 4-10 contain service area outside of the MNWA study area: East Bench Canal Company, Lake Shore Irrigation Company, Spanish Fork West Field

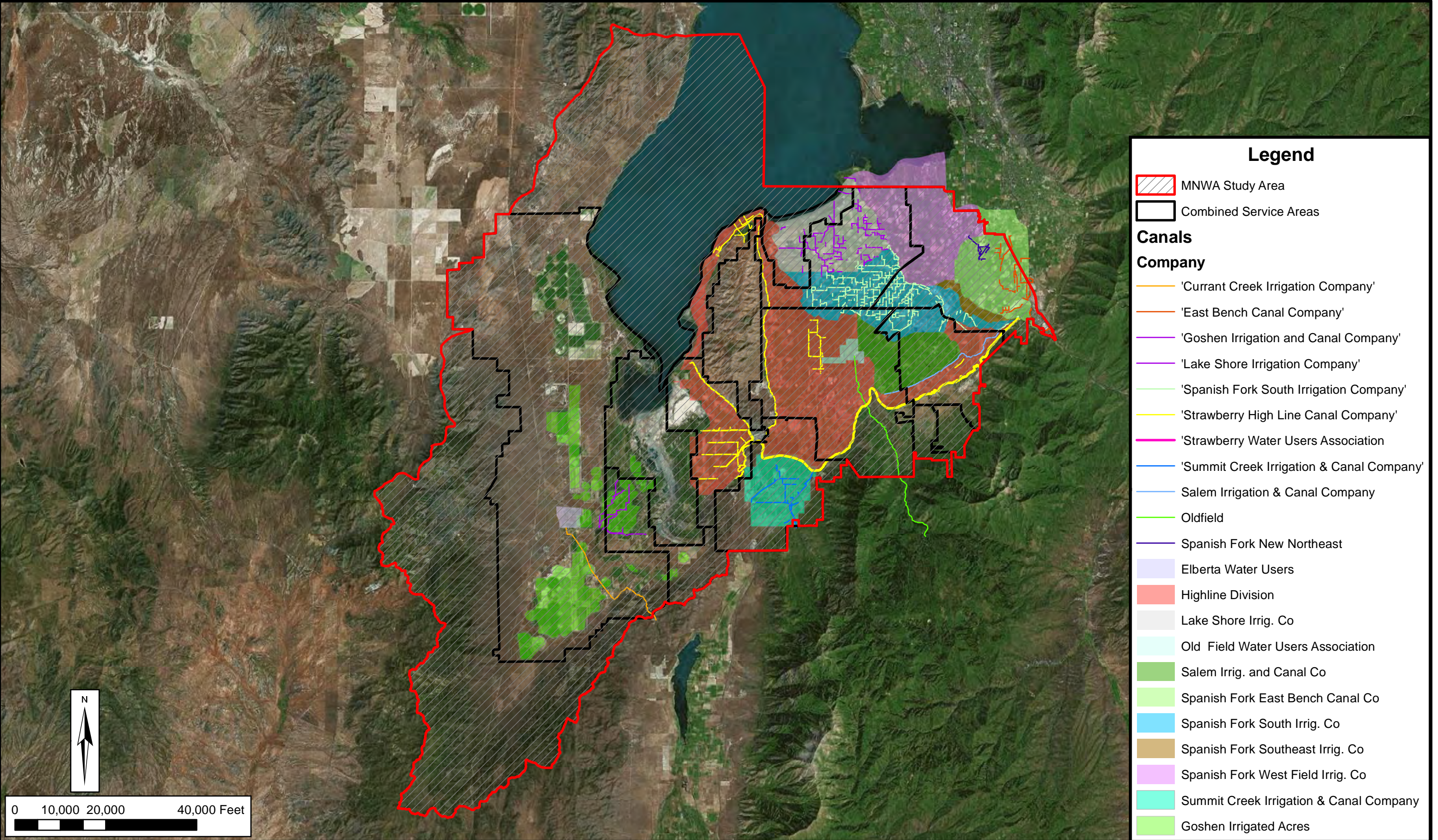
Irrigation Company, and Wash Creek Irrigation Company. Canal length was not adjusted based on service area outside of the study boundary.

**Table 4-10
Irrigation Company Surface Diversion Capacity and Canal Length**

Name	Service Area (Acres)	Canal Diversion Capacity (cfs)	Canal Length (ft)
Current Creek Irrigation Company	6,274	45.00	34,411
Duck Creek Irrigation Company ¹	434	6.00	4,102
East Bench Canal Company	4,251	95.00	31,206
East Santaquin Irrigation Company ¹	459	4.00	4,339
East Warm Creek Irrigation and Canal Company ¹	210	2.55	1,985
Elberta Water Company ¹	29	0.55	276
Goshen Irrigation and Canal Company	5,470	19.00	53,417
Lake Shore Irrigation Company	4,540	60.00	19,632
Loafer Water Users Association ¹	38	0.05	361
New Northeast Spanish Fork Irrigation Company	236	4.00	19,441
Old Field Water Users Association ¹	432	2.00	48,812
Salem Irrigation and Canal Company ¹	2,465	55.00	33,214
Salem Pond Company ¹	968	7.00	9,153
Spanish Fork South Irrigation Company	6,667	75.00	49,612
Spanish Fork Southeast Irrigation Class A Shares (river) ¹	947	15.00	22,883
Spanish Fork West Field Irrigation Company	6,628	82.00	62,688
Strawberry High Line Canal Company	19,940	300.00	163,428
Strawberry Water Users Association	-	550.00	17,424
Summit Creek Irrigation & Canal Company	2,153	30.00	50,925
Warm Springs Irrigation and Power Company ¹	1,437	9.65	13,588
Wash Creek Irrigation Company	375	2.23	12,390
Total	63,953	1,114	653,287

¹Estimated Canal Length

Date: 8/7/2017
Document Path: H:\Projects\399 - Mt. Nebo Water Agency\01.100 - Regional Water Supply Study\GIS\Working\Figure 4-3 Irrigation Company Data.mxd



MT NEBO WATER AGENCY

REGIONAL WATER SUPPLY STUDY
CANAL COMPANY DATA

FIGURE
4-3

SUMMARY OF MNWA STUDY AREA EXISTING FACILITIES

Existing capacity is an annual volume of water that is available for use within a system based on the infrastructure in place and maintained to provide water. Table 4-11 is a summary of existing capacity of facilities owned and operated by municipalities or public water suppliers within the MNWA study area. This table is a summary of information on Tables 4-1 through 4-9.

**Table 4-11
Existing Annual Capacity of Municipal Water Systems**

Subarea	Indoor Capacity (ac-ft)	Outdoor Capacity (ac-ft)	Total Capacity (ac-ft)
	Existing	Existing	Existing
Benjamin/Lakeshore	0	0	0
Elk Ridge	2,036	0	2,036
Genola	1,031	0	1,031
Goshen Town	675	0	675
Goshen Valley/Elberta	1,500	0	1,500
Payson	5,646	14,364	20,010
Salem	5,414	11,136	16,550
Santaquin	5,101	1,476	6,577
Spanish Fork	13,050	10,040	23,090
Wetlands	0	0	0
Woodland Hills	1,021	0	1,021
Total MNWA Area	35,474	37,017	72,491

The main canals of irrigation companies operating in the MNWA study area have the combined capacity to carry about 1,114 cfs of water through approximately 653,287 ft of canal length. Assuming water in the irrigation canals flow 180 days during the irrigation season would produce a volume of 397,736 ac-ft of water per irrigation season.

The CUP and SVP tunnels, canals, and pipelines allow for the delivery of 61,000 ac-ft of SVP water with a 50,000 ac-ft bank.

The ULS System will deliver 101,900 ac-ft of CUP water through Spanish Fork Canyon (U.S. Department of the Interior, Central Utah Project Completion Act Office). Upon exiting the canyon, water traveling south will flow through the Spanish Fork-Santaquin Pipeline (under construction) which will consist of 17.5 miles of pipe with the capacity to deliver a flow of 120 cfs to communities within the Mt. Nebo Water Agency.

WATER RIGHTS

The right to use water in the semi-arid and sub-humid climates of the MNWA study area in southern Utah County has been a contested topic since the first settlers arrived. Over time, legal water use in Utah has evolved to a system of water rights administered by the State Engineer. The DWRi defines a water right as, “the right to use water diverted at a specific location on a water source, and put it to recognized beneficial uses at set locations (DWRi, 2017).” The ownership of shares in an irrigation company based on water rights is also generally recognized by the State as a right for water use.

A list of existing water rights that divert water or put water to use within the boundaries of the MNWA study area was compiled for this study. The main objective of inventorying water rights was to determine an annual volume of the rights available within the MNWA study area. Table ES-6 is a summary by subarea of the water rights listed.

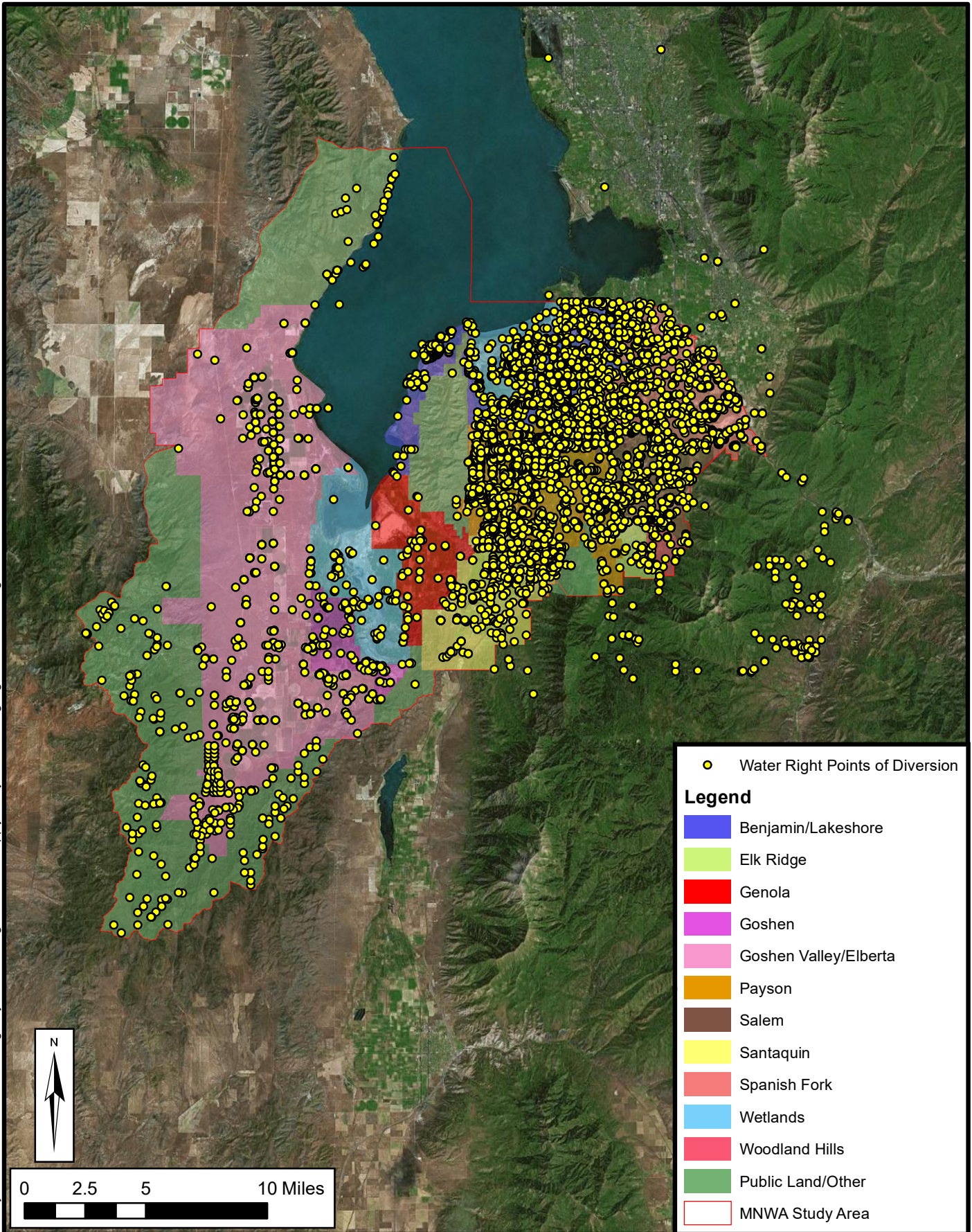
The MNWA study area is within DWRi water right areas 51 and 53 which are administratively closed to new water rights (DWRi, 2017). All sources of water are fully appropriated and, in some locations, may be over allocated. As stated on the DWRi website for these areas, “new diversions and uses of water are established by the modification of existing water rights.”

Each water right will require a specific evaluation to determine historical diversion and depletion. Annual volume listed for water rights does not directly correlate to water available for new diversions since any change in the water right is subject to evaluation by the State Engineer and limitations based on depletion, prior use, duties, and/or legal issues could result in a right with less water available for a new use. Due to the scale and broad objectives of this study, all water right annual volumes listed in this report should be considered approximate and appropriate for the purposes of this study.

Water Right Lists Explanatory

Water rights were organized into subareas of the MNWA study area and evaluated for general average annual volume. The DWRi database and website mapping features were used along with GIS mapping tools to overlay water right points of diversion and places of use with subarea boundaries.

Figure 4-4 shows water right diversion points overlain on the subarea boundaries. A digital copy of this map allows the user to access the DWRi database information on individual water rights by selecting the location on the interactive map. A disk containing the digital file is provided in the back of this report following the appendices.



**MNWA Regional Water Supply
Study Subareas and Water Right Points of Diversion**

**FIGURE
4-4**

Tables listing the water rights individually by subarea are found in Appendix H. For each subarea the lists are categorized by their source: groundwater or surface water. Table 4-12 is a summary by subarea of the water rights listed. A water right with an approved change application that changed the source was categorized with the approved change.

Categorizing subarea water rights by source allows a comparison between surface and groundwater sources of water to surface and groundwater water rights. For example, the subarea of Spanish Fork has an annual volume of about 20,600 ac-ft of groundwater water rights but, as discussed in the following chapter, it is estimated that only about a quarter of this groundwater volume is available for well pumping each year in the Spanish Fork Subarea.

**Table 4-12
Water Right Summary Based on Source
(Groundwater and Surface Water Rights)**

Subarea	Groundwater Water Rights¹ (ac-ft)	Surface Water Rights¹ (ac-ft)	Total Water Rights¹ (ac-ft)
Benjamin/Lakeshore	6,085	9,089	15,174
Elk Ridge	1,567	38	1,605
Genola	2,257	2,508	4,764
Goshen	2,047	4,831	6,877
Goshen Valley/Elberta	38,925	21,023	59,948
Payson	20,159	15,859	36,018
Salem	9,832	5,864	15,696
Santaquin	13,943	12,127	26,070
Spanish Fork	20,600	25,605	46,205
Wetlands	572	6,051	6,623
Woodland Hills	822	2	824
Total MNWA Area	116,807	102,996	219,803

¹ Due to the scale and broad objectives of this study, all listed water right annual volumes are approximate. Individual water right value requires specific evaluation to determine historical diversion and depletion.

In addition to being categorized by subarea and source, the tables in Appendix H also separate water rights by owner: municipal, private, or irrigation company. A summary of the annual volume of water rights in each subarea categorized by owner is found in Table 4-13.

Table 4-13
Water Right Summary Based on Ownership Type
(Private, Municipal and Irrigation Company Water Rights)

Subarea	Privately Owned Water Rights¹ (ac-ft)	Municipal Water Rights¹ (ac-ft)	Irrigation Company Water Rights¹ (ac-ft)	Total Water Rights¹ (ac-ft)
Benjamin/Lakeshore	5,459	0	9,715	15,174
Elk Ridge	30	1,417	157	1,605
Genola	1,604	994	2,166	4,764
Goshen	1,447	572	4,858	6,877
Goshen Valley/Elberta	47,936	2,724	9,287	59,948
Payson	20,321	7,338	8,359	36,018
Salem	3,608	5,032	7,056	15,696
Santaquin	10,130	5,994	9,946	26,070
Spanish Fork	5,824	23,602	16,779	46,205
Wetlands	2,133	0	4,490	6,623
Woodland Hills	91	733	0	824
Total MNWA Area	98,583	48,407	72,813	219,803

¹ Due to the scale and broad objectives of this study, all listed water right annual volumes are approximate. Individual water right value requires specific evaluation to determine historical diversion and depletion.

For this evaluation, municipal water rights are defined as having the owner as the primary public water supplier for the corresponding subarea. Thus the Benjamin/Lake Shore Subarea and the Wetlands Subarea have an annual volume of zero from municipal water rights since these areas do not have a public water supplier. Table 4-14 shows that some subareas have only municipal water rights in groundwater. Some public water suppliers also have shares in irrigation companies that are included as irrigation company owned water rights.

**Table 4-14
Municipal Water Rights**

Subarea (Public Water Supplier)	Municipal Groundwater Water Rights¹ (ac-ft)	Municipal Surface Water Rights¹ (ac-ft)	Total Municipal Water Rights¹ (ac-ft)
Benjamin/Lakeshore (None)	0	0	0
Elk Ridge (Elk Ridge City)	1,417	0	1,417
Genola (Genola Town)	994	0	994
Goshen (Goshen Town)	169	403	572
Goshen Valley/Elberta (Goshen Valley Local District)	2,724	0	2,724
Payson (Payson City)	5,935	1,403	7,338
Salem (Salem City)	4,127	905	5,032
Santaquin (Santaquin City)	2,721	3,272	5,994
Spanish Fork (Spanish Fork City)	13,607	9,995	23,602
Wetlands (None)	0	0	0
Woodland Hills (Woodland Hills City)	733	0	733
Total MNWA Area	32,428	15,979	48,407

¹ Due to the scale and broad objectives of this study, all listed water right annual volumes are approximate. Individual water right value requires specific evaluation to determine historical diversion and depletion.

Irrigation company owned water rights are based on shares in an irrigation company that has infrastructure within the MNWA study area. These water rights are not listed separately by water right number in Appendix H but are included as a total annual volume of the irrigation company shares used within a subarea as summarized in Table 4-13. Table 4-15 shows that irrigation company owned water rights have surface and groundwater sources. Further explanation of the method and assumptions used to evaluate irrigation company water rights is found in the following section entitled “Local Irrigation Company Water Rights and Shares.”

**Table 4-15
Irrigation Company Water Rights**

Subarea	Irrigation Company Groundwater Water Rights¹ (ac-ft)	Irrigation Company Surface Water Rights¹ (ac-ft)	Total Irrigation Company Water Rights¹ (ac-ft)
Benjamin/Lakeshore	1,892	7,823	9,715
Elk Ridge	119	38	157
Genola	660	1,506	2,166
Goshen	438	4,420	4,858
Goshen Valley/Elberta	372	8,915	9,287
Payson	3,057	5,302	8,359
Salem	2,958	4,098	7,056
Santaquin	4,001	5,945	9,946
Spanish Fork	1,417	15,362	16,779
Wetlands	316	4,174	4,490
Woodland Hills	0	0	0
Total MNWA Area	15,230	57,583	72,813

¹ Due to the scale and broad objectives of this study, all listed water right annual volumes are approximate. Individual water right value requires specific evaluation to determine historical diversion and depletion.

Water rights listed in a subarea as privately owned include all other rights that have not been categorized as owned by a municipality or local irrigation company. Table 4-16 shows privately owned water rights with groundwater and surface sources.

**Table 4-16
Private Water Rights**

Subarea	Privately Owned Groundwater Water Rights¹ (ac-ft)	Privately Owned Surface Water Rights¹ (ac-ft)	Privately Owned Water Rights¹ (ac-ft)
Benjamin/Lakeshore	4,193	1,266	5,459
Elk Ridge	30	0	30
Genola	603	1,002	1,604
Goshen	1,439	8	1,447
Goshen Valley/Elberta [^]	35,828	12,108	47,936
Payson ^{^^}	11,167	9,154	20,321
Salem	2,747	861	3,608
Santaquin	7,220	2,909	10,130
Spanish Fork	5,576	248	5,824
Wetlands	256	1,877	2,133
Woodland Hills	89	2	91
Total MNWA Area	69,149	29,435	98,583

¹ Due to the scale and broad objectives of this study, all listed water right annual volumes are approximate. Individual water right value requires specific evaluation to determine historical diversion and depletion.

For water rights listed individually in Appendix H, information includes the water right owner, change application number if applicable, average annual diversion volume, source, and average flow if available. In some cases a sole supply was not listed on a water right in the DWRi database and engineering judgment was used to estimate the average annual volume. Due to the scale and broad objectives of this study, water right values listed in Appendix H are approximate and

are appropriate for this study. Each water right will require a specific evaluation to determine historical diversion and depletion.

Water rights in the MNWA study area that were owned by federal or state government agencies such as the U.S. Forest Service or Bureau of Land Management were not included in the water right subarea lists or total water volume calculations. It is assumed that this water will remain state or federally owned.

Local Irrigation Company Water Rights and Shares

Local irrigation companies considered in this study are listed in Table 4-17. Information on the service area and historical water supply of these irrigation companies was determined by evaluating DWRi records, irrigation company records, as well as a report by CUWCD for the SFN System (CUWCD, 1998). Appendix E shows greater detail of the summarized information shown for local irrigation companies in Table 4-17.

The shares for most of these irrigation companies are represented by base water right numbers recorded with the DWRi. This base water right number does not include the names of shareholders. Private and municipal shareholders in irrigation companies that file change applications based on irrigation company shares are issued a new water right number. However, unless the irrigation company actually sells the shares, the irrigation company also appears as owner on the new water right number and the shares are not segregated from the base water right held by the irrigation company. Thus irrigation company service areas generally represent where the water is being used.

Local irrigation companies have service areas that cross subarea boundaries and serve areas outside of the MNWA study area. In order to determine a value of annual water right volume for irrigation company base water rights that apply to the study, service area locations of the local irrigation companies were overlain in GIS with the study subareas. A percentage of each irrigation company's service area within a subarea was determined and used to separate the historical amount of surface and groundwater supply by subarea. As shown in Table 4-16, some irrigation companies also rely on SVP water. For example, SHLCC relies heavily on SVP water and return flow. SVP water and return flow, however, was not considered in irrigation company owned water right annual water volume totals shown in Table 4-13.

Areas served by larger local irrigation companies are shown on Figure 4-3. Location of service areas of smaller companies were determined using DWRi water right place of use mapping or engineering judgement based on canal locations to evaluate the percent of service area of each company by subarea boundaries.

A few small irrigation companies operating within the MNWA study area are not listed on Table 4-17. These companies include Mt. Loafer Irrigation Company, Lakeside Irrigation Company, and Holladay Field & Ditch Company. A limited amount of information was found on these companies. Any water rights associated with these companies were listed with private or municipal water rights in the subarea.

Some irrigation companies listed in Table 4-17 contain service area outside of the MNWA study area: East Bench Canal Company (23%), Lake Shore Irrigation Company (1.6%), Spanish Fork West Field Irrigation Company (21%) and Wash Creek Irrigation Company (55%).

**Table 4-17
Irrigation Company
Historical Surface and Groundwater Supply**

Irrigation Company Name	Service Area (Acres)	Total Irrigation Water Supply (ac-ft)	Supply from Surface Water (ac-ft)	Supply from Ground-water (ac-ft)	Return Flow (ac-ft)	Supply from SVP Water (ac-ft)	Irrigation Water Supply without SVP or Return Flow (ac-ft)
Current Creek Irrigation Company	6,274	9,028	9,000	28			9,028
Duck Creek Irrigation Company	434	1,735	1,735				1,735
East Bench Canal Company	4,251	6,144	6,144				6,144
East Santaquin Irrigation Company	459	882		882			882
East Warm Creek Irrigation and Canal Company	210	843	843				843
Elberta Water Company	29	91		91			91
Goshen Irrigation and Canal Company	2,341	2,800	2,800				2,800
Lake Shore Irrigation Company	4,540	4,874	2,555	500		1,819	3,055
Loafer Water Users Association	38	157	38	119			157
New Northeast Spanish Fork Irrigation Company	236	944	944				944
Old Field Water Users Association	432	-					-
Salem Irrigation and Canal Company	2,465	5,863	4,685	990		188	5,675
Salem Pond Company	968	2,520		2,520			2,520
Spanish Fork South Irrigation Company	6,667	13,346	7,640	2,450		3,256	10,090
Spanish Fork Southeast Irrigation Class A Shares (river)	947	1,567	1,567				1,567
Spanish Fork Southeast Irrigation Class B Shares (well)	209	836	836				836
Spanish Fork West Field Irrigation Company	6,628	13,254	9,681	1,330		2,242	11,011
Spring Lake Water Works Company	2	31		31			31
Strawberry High Line Canal Company	19,940	53,344	3,286	3,274	13,000	33,785	6,559
Summit Creek Irrigation & Canal Company	2,153	8,540	5,640	2,900			8,540
Warm Springs Irrigation and Power Company	1,437	3,701	3,701				3,701
Wash Creek Irrigation Company	375	2,135	864	1,271			2,135
Total	61,035	132,635	61,959	16,386	13,000	41,290	78,344

Irrigation company data for this table was gathered from DWRI records, SFN Project Report (CUWCD, 1998), and direct communication with irrigation companies.

CHAPTER 5 – WATER RESOURCES

INTRODUCTION

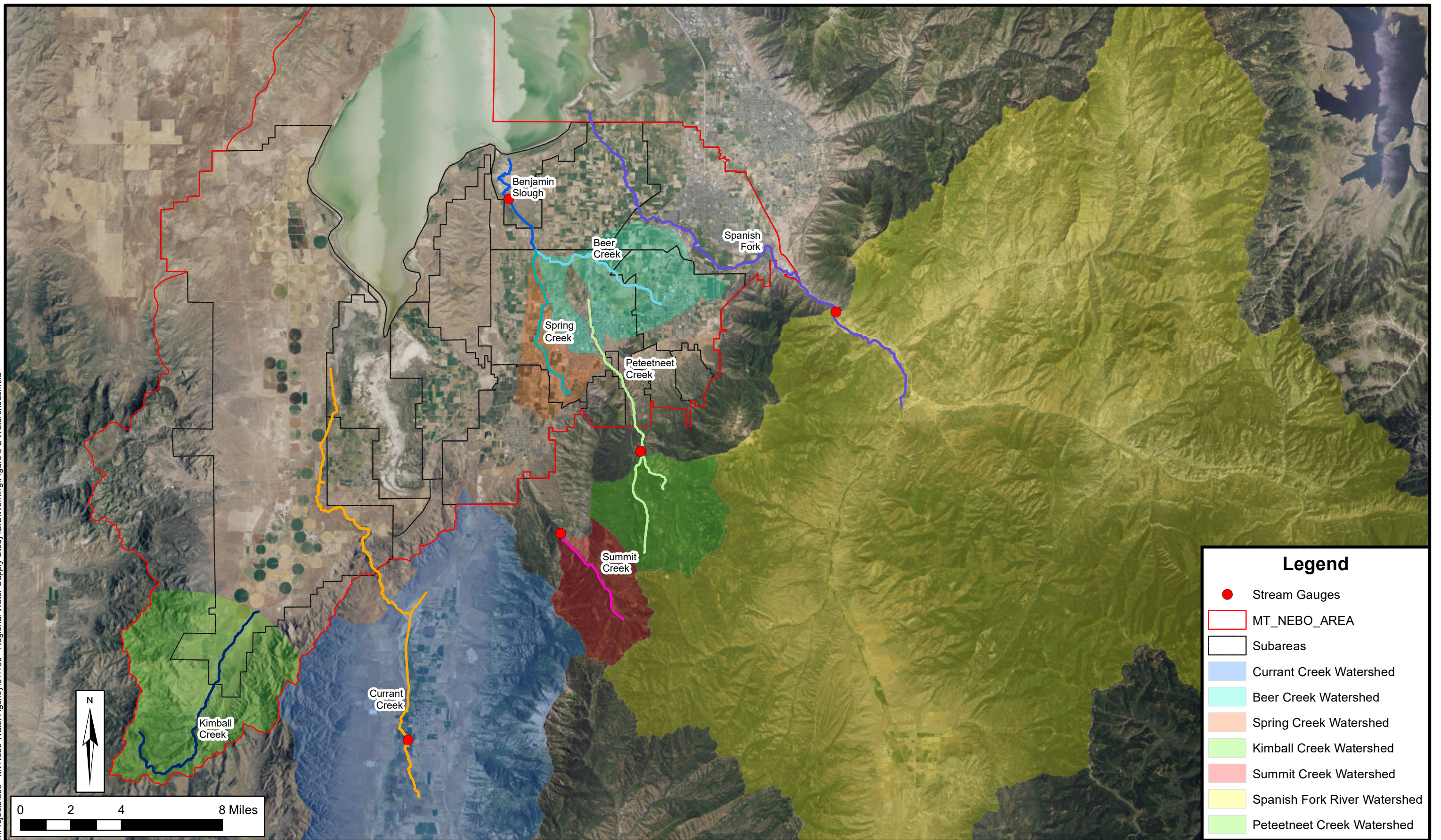
Sources of water for the MNWA study area include rivers and streams, groundwater, springs and imported water from the SVP. In addition to these resources, many municipalities have contracted with CUWCD for CUP water.

HYDROLOGY

Rivers and Streams

The location of the main rivers and streams that enter and originate in the MNWA study area in South Utah County are shown on Figure 5-1. Three perennial rivers and streams originate in the Wasatch Mountain Range: Spanish Fork River, Peteetneet Creek (also known as Payson Creek), and Summit Creek. Currant Creek and Kimball Creek are intermittent streams that flow into Goshen Valley. Spring Creek and Beer Creek, which feed into Benjamin Slough, are perennial streams originating within the valley.

Figure 5-1 also shows an approximate outline of watershed areas for the streams. Existing or historical U.S. Geological Survey (USGS) or USBR stream flow gauging station locations are shown on Figure 5-1. Corresponding historical records of flow data are summarized as an average annual volume in Table 5-1. For the years available, monthly average flow data for the rivers and streams listed in Table 5-1 is found in Appendix J. Historical flow data reported from USGS was taken from the National Water Information System web interface (Reclamation, 2017). Historical flow data reported for the USBR gauging station for Benjamin Slough was taken from a 1988 report on water supply in the Bonneville Basin (Reclamation, 1988).



Legend

- Stream Gauges
- ▭ MT_NEBO_AREA
- ▭ Subareas
- ▭ Currant Creek Watershed
- ▭ Beer Creek Watershed
- ▭ Spring Creek Watershed
- ▭ Kimball Creek Watershed
- ▭ Summit Creek Watershed
- ▭ Spanish Fork River Watershed
- ▭ Peteetneet Creek Watershed

**Table 5-1
Average Annual Stream Flow Data**

Stream	Stream Flow Gauging Stations				Average Annual Volume (ac-ft)
	Type	Number	Location	Period of Record	
Spanish Fork River	USGS ³	10150500	Spanish Fork at Castilla, UT	1933-present	169,700 ¹ (Natural flow volume, 105,263)
Summit Creek	USGS ³	10147000	Summit Creek above diversions near Santaquin, UT	1911-1916, 1955-1966	8,524
Peteetneet Creek	USGS ³	10147500	Payson Creek above diversions near Payson, UT	1948-1962	9,089
Currant Creek (Mona Station)	USGS ³	10146400	Currant Creek near Mona, UT	1978-present	17,785
Currant Creek (Mona Station)	USGS ³	10146500	Currant Creek near Mona, UT	1954-1960	15,800
Benjamin Slough²	Reclamation ⁴	NA	Benjamin Slough near Utah Lake	1958-1973	22,323

¹Spanish Fork River flows reported at the USGS flow gauging station at Castilla, Utah without imported Strawberry water subtracted.

²This flow record is listed as Beer Creek in the historical record but the location of the gauge is now considered Benjamin Slough.

³USGS historical flow data taken from the National Water Information System web interface (Reclamation, 2017).

⁴Reclamation historical flow data was taken from the 1988 Water Supply Appendix prepared by the USBR and the Bonneville Unit of the Central Utah Project (Reclamation, 1988)

To evaluate the surface water resources of the MNWA study area, an average annual volume and irrigation season volume were calculated or estimated based on available monthly flow records. Flow records used in irrigation season calculations included only the months of April through October. In addition to an average annual volume for each of these surface sources, a dry year volume and irrigation season dry volume were calculated based on State code for a low flow. For the purpose of facility design and operation, State code defines the quantity of water to be based on a low flow. A low flow was defined according to the State of Utah Administrative Code R309-515-5 part 4a:

“The quantity of water from surface sources shall be assumed to be no greater than the low flow of a 25-year recurrence interval or the low flow of record for these sources when 25 years of records are not available.”

The main rivers and streams are described and evaluated as resources in the MNWA study area in the following sections. Table 5-2 is a summary of the contribution of each of these resources. As shown in Table 5-1, several decades of consistent flow measurements exist for the Spanish Fork River. Most of the other streams have less than 25-years of historical flow data or are not listed in Table 5-1 if a record of flow does not appear in the historical record. Previous studies give some estimates as well as a few isolated measurements of stream flow for streams that have not had gauging stations and are referenced in detailed discussions of each stream.

**Table 5-2
Annual and Irrigation Season Volume Contributed by Streams**

Surface Water Source	25-Year Low (year or years)	Annual Average Volume (ac-ft)	Irrigation Season Average Volume (ac-ft)	Dry Year Volume (ac-ft)	Irrigation Season Dry Year Volume (ac-ft)
Spanish Fork River ¹	1934, 1961, 1977, 2002	105,263	74,673	39,933	17,277
Summit Creek	1961	8,524	7,292	3,544	2,500
Peteetneet Creek	1961	9,089	7,567	3,769	2,674
Currant Creek (Mona Station)	2015	17,785	9,454	2,390	771
Beer Creek	N/A	-	-	-	-
Kimball Creek	Based on Spanish Fork River flow for 1961	70	50	17	7
Spring Creek	N/A	-	-	-	-

¹Spanish Fork River flows do not include imported Strawberry water.

Spanish Fork River – The Spanish Fork River is the main source of perennial stream flow entering the MNWA study area. The U.S. Geological Survey maintains a continuous-reading stream flow gauging station at Castilla, Utah. As shown in Table 5-1, the record from 1933 through 2015 was used to determine an annual measured volume for the River of 169,700 ac-ft.

Since the early 1900's, flow of water from the Strawberry Reservoir into the Spanish Fork Drainage Area has contributed to the recorded flow of the River at the Castilla, Utah station. This supplementary flow was subtracted from the corresponding historical Spanish Fork River daily flow data to find the average natural flow of the Spanish Fork River to yield an annual average volume of 105,263 ac-ft, as shown in Table 5-1. See Appendix J for monthly flow data for the Spanish Fork River.

Historical flow of water delivered from Strawberry Reservoir was extracted from Annual Water Distribution Reports of the Spanish Fork River Distribution System produced by the Spanish Fork River Water Commissioner in tables produced by the CUWCD (Spanish Fork River Commissioner, 1933-2016). Our analysis indicates approximately 62 percent of the Spanish Fork River flow at the Castilla, Utah Station, is from 652 square miles of watershed area in the Wasatch Range and 38 percent of the flow is from Strawberry Reservoir in the Colorado River Basin. This analysis of Spanish Fork River flows compares closely to a 1995 hydrology study prepared by USGS in cooperation with Utah DNR and DWRi (Stolp, 1995). Based on flow data from the Castilla, Utah Station, the average annual flow of the Spanish Fork River, including imported water from the Strawberry Reservoir, was 168,100 ac-ft for all available historical flow data through 1994 and 174,900 ac-ft for historical flow data from 1949 through 1990.

A dry year flow for the Spanish Fork River was determined based on the State definition of low flow for surface water. The low flow for each 25 year period of flow records was determined and averaged to yield the average low year flow and corresponding volume shown in Table 5-3. Eighty-three years of records spanning from 1933 to 2015 were divided into 25 year sections to

find the average 25-year flow, with the earliest section of years only having 7 years of records. Also shown in table 5-2, a low flow was determined based on irrigation season monthly records (April 1 through October 31) rather than the entire year. For this study, the average 25 year low flow during the irrigation season, 40.7 cfs, was assumed to be the dry year flow for the Spanish Fork River which corresponds to a dry year volume of 17,277 ac-ft.

**Table 5-3
Annual Average Dry Year Flow for the Spanish Fork River**

Dry Years	Irrigation Season Low Volume	Low Year Volume	Irrigation Season Low Flow	Low Year Flow
Years	ac-ft	ac-ft	cfs	cfs
1934	17,088	32,961	40.3	46
1961	14,496	28,698	34.2	39.6
1977	17,052	34,795	40.2	48
2002	20,473	63,277	48.2	87.4
Average 25-Year Low	17,277	39,933	40.7	55.2

Summit Creek – Summit Creek is a perennial stream that flows through Santaquin Canyon, entering Utah Valley in the Santaquin Subarea as shown on Figure 5-1. Summit Creek flow enters the Summit Creek Irrigation Company system through-out the year for flow up to 30 cfs. Overflow, flow exceeding 30 cfs, remains in the original stream channel (Stolp, 1995).

Flow records for Summit Creek exist for the years 1911 through 1916 and 1955 through 1966. These records were used to calculate the average volume and irrigation season volume shown in Table 5-1 of 8,524 ac-ft and 7,292 ac-ft respectively. As a comparison, an average annual volume of Summit Creek was estimated to be 8,900 ac-ft for the years 1930-1973, using estimated values for years flow data was not available. This data was tabulated in a 1988 report by the USBR (Reclamation, 1988). See Appendix J for monthly flow data for Summit Creek.

To find the average dry year volume, the low flow of record was used which was in the year 1961. As shown in Table 5-1, the dry year volume was 3,544 ac-ft and the irrigation season dry year was 2,500 ac-ft.

Peteetneet Creek – Peteetneet Creek is a perennial stream that flows through Payson Canyon and enters Utah Valley in the Payson Subarea as shown on Figure 5-1. After Peteetneet Creek enters the Utah Valley, it is divided at the mouth of the canyon into City Ditch, the stream’s original channel, and an overflow ditch known as West Ditch that eventually joins Spring Creek which feeds into Benjamin Slough. As summarized from a 1995 USGS and DNR hydrology and groundwater study, water from Peteetneet Creek enters West Ditch during the non-irrigation season. The average annual flow of 4,400 ac-ft was estimated for West Ditch. During the irrigation season, most of the flow remains in City Ditch and any additional flow enters West Ditch (Stolp, 1995).

As shown on Table 5-1, flow records for Peteetneet Creek are available for the years 1948 through 1962 at the USGS gauging station listed. This data yields an average annual volume of 9,089 ac-ft with an irrigation season average volume of 7,567. As a comparison, an average annual volume of Peteetneet Creek was estimated to be 9,200 ac-ft for the years 1930-1973 in a 1988 report by the USBR (Reclamation, 1988). All flows prior to 1948 and after 1962 for the

listed period of record were estimated. See Appendix J for monthly flow data for Peteetneet Creek.

To find the average dry year volume, the low flow of record was used which was in the year 1961. As shown in Table 5-1, the dry year volume was 3,769 ac-ft and the irrigation season dry year was 2,674 ac-ft.

Currant Creek – Currant Creek is an intermittent stream that originates from springs and runoff south of Mona, Utah and flows from Mona Reservoir in Juab Valley, through Goshen Canyon, to Goshen Valley.

As shown on Table 5-1, flow records for Currant Creek are available for the years 1978 to the present at the USGS gauging station listed. This data yields an average annual volume of 17,785 ac-ft with an irrigation season average volume of 9,454 ac-ft. A different gauging station near Mona Utah on Currant Creek is also listed on Table 5-1. This station was removed in 1960 but operated for seven consecutive years beginning in 1953. As a comparison, the average annual volume of Currant Creek from this station is 15,800 ac-ft (Stolp, 1995). See Appendix J for monthly flow data for Currant Creek.

To find the average dry year volume, the low flow of record was used which corresponded to the year 2015. As shown in Table 5-1, the dry year volume was 2,390 ac-ft and the irrigation season dry year was 771 ac-ft.

Kimball Creek – Kimball Creek is an intermittent stream that originates from springs and runoff in the Tintic Mountains and flows to the southern end of Goshen Valley. An average annual volume was estimated for Kimball Creek of 70 ac-ft for a 1995 hydrology and groundwater study (Stolp, 1995).

Spanish Fork River data was used to estimate an average annual volume during irrigation season months and dry year volumes. The graph shown in Figure 5-2 shows a relationship exists between the flow records available from the years 1979 to 2015 for Currant Creek and the average natural flow of the Spanish Fork River. Since this is the best comparison available for Kimball Creek, ratios were calculated from the average annual volume of the Spanish Fork River to find the irrigation season volume and dry year flows to estimate the average volumes shown in Table 5-2 for Kimball Creek.

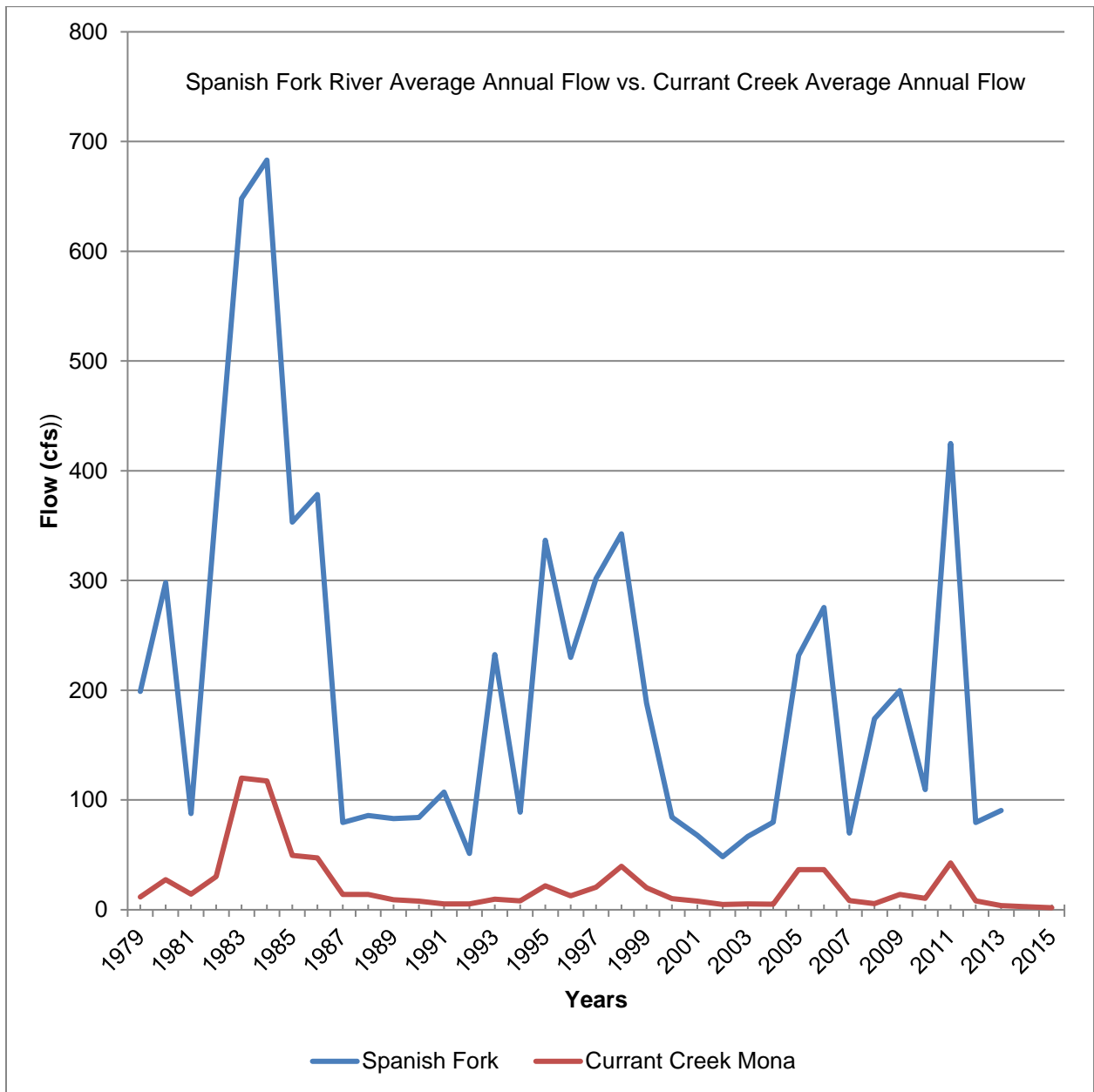


Figure 5-2 Spanish Fork River Flow and Currant Creek (Mona Station) Flow Comparison.

Spring Creek, Beer Creek, Benjamin Slough – Spring Creek, Beer Creek, and Benjamin Slough originate within southern Utah Valley and are shown on Figure 5-1. Spring Creek and Beer Creek flows originate from Spring Lake and Salem Lake, respectively, which are fed by springs. Benjamin Slough originates at the confluence of Beer Creek and Spring Creek. In addition to groundwater discharge, precipitation, irrigation return flow and wastewater-treatment plants also contribute to the flow of these and other small streams originating within South Utah Valley. With a lack of stream flow data for Beer Creek and Spring Creek and the primary flow coming from springs within the valley, this flow is considered as groundwater discharge in this report as was done in a 1995 hydrology USGS study (Stolp, 1995). Thus on Table 5-2, an annual volume and dry year volume is not shown for Spring Creek and Beer Creek for surface water flow. Although this flow is considered as surface water flow on water rights, it is included as ground water supply for this report. The following paragraphs evaluate the flow that is available from these streams.

As shown in Table 5-1, a USBR gauging station was placed on Benjamin Slough from 1958 to 1973 to yield an average annual volume of 22,323 ac-ft (Reclamation, 1988). In the 1988 report, Benjamin Slough was referred to as Beer Creek. The gauging station is located about 2 miles upstream of Utah Lake which is the location of what is referred to as Benjamin Slough in this report. An intermittent record of flow from Benjamin Slough from 1937 to 1966, collected about 3 miles upstream of Utah Lake, gives an average annual flow measurement of 16,000 ac-ft (Cordova, 1970).

Table 5-4 shows one-time measurements taken for a USBR (Reclamation, 1988). The volume listed as “Benjamin Slough Total” in Table 5-2 includes flow from Spring Creek, Beer Creek, the West Ditch from Peteetneet Creek and groundwater discharge into the slough. Spring Creek receives 4,400 ac-ft of flow from the West Ditch of Peteetneet Creek during the non-irrigation season (Stolp, 1995). Benjamin Slough, which originates at the confluence of Beer Creek and Spring Creek, receives about 800 ac-ft of flow in addition to flows from Beer Creek and Spring Creek. The total average annual volume for Benjamin Slough listed in Table 5-4 is 15,000 ac-ft which compares closely to the total volume for Benjamin Slough discussed in the previous paragraph.

**Table 5-4
Additional Stream Flow Data**

Stream	USGS and DNR Hydrology/Groundwater Study from 1995	Average Annual Volume (ac-ft)
	Date of Testing	
Groundwater Discharge to Benjamin Slough	March 1991	800
Spring Creek	March 1991	2,700
Beer Creek	March 1991	7,900
West Ditch (Peteetneet Creek)	N/A	4,400
Total Benjamin Slough		15,000

¹Average Annual Volume reported in U.S. Geological Survey and State of Utah Division of Natural Resources study (Stolp, 1995).

Rivers and Streams Annual Volumes by Subarea

For the purpose of this report, surface water volumes for the rivers and streams shown in Table 5-2 were distributed among the subareas in the MNWA study area. In Table 5-5, surface water

contributions from Beer Creek and Spring Creek are not shown since limited flow data exists for these streams. Surface water volumes for an average water year and dry water year only include flows during the irrigation season.

Table 5-5 lists percentages of surface water sources among the study subareas based on use. Summit Creek enters and stays within the Santaquin Subarea, with distribution from the Summit Creek Irrigation and Canal Company and the City. Peteetneet Creek enters and, during the irrigation season, generally stays within the Payson Subarea and is distributed by Payson City which also supplies Old Field Water Users Association's irrigated acres with water. Although outside of the irrigation season, some flow enters Benjamin Slough and eventually Utah Lake, one hundred percent of the water is assumed to stay within the Payson Subarea. Kimball Creek flows stay within the Goshen Valley/Elberta Subarea as does Currant Creek. Currant Creek also has flows that enter the Goshen Subarea through the Goshen Irrigation and Canal Company. The subareas of Elk Ridge and Woodland Hills do not receive any flow from the rivers and streams listed in Table 5-5. The subareas of Genola, Goshen, Payson, Salem, Santaquin, Spanish Fork, Benjamin/Lakeshore and Wetlands, all receive water from the Spanish Fork River. The percentage of Spanish Fork River flow shown on Table 5-5 is based on historical decreed river diversion and canal company service area locations compared to subarea boundaries.

**Table 5-5
Annual River and Stream Water Volume by MNWS Subarea**

MNWA Regional Water Study Subareas	River/Creek	Percent Use (%)	Irrigation Season Average Volume ¹ (ac-ft)	Irrigation Season Dry Year Volume ² (ac-ft)	Total Irrigation Season Average Volume ¹ (ac-ft)	Total Irrigation Season Dry Year Volume ² (ac-ft)
Elk Ridge	none	0	0	0	0	0
Genola	Spanish Fork River	9%	6,943	1,606	6,943	1,606
Goshen	Currant Creek	25%	2,364	193	2,364	193
Goshen Valley/Elberta	Currant Creek	75%	7,091	578	7,141	585
	Kimball Creek	100%	50	7		
Payson	Peteetneet Creek	100%	7,567	2,674	26,313	7,011
	Spring Creek	99%	0	0		
	Beer Creek	5%	0	0		
	Spanish Fork River	25%	18,746	4,337		
Salem	Spanish Fork River	10%	7,472	1,729	7,472	1,729
Santaquin	Summit Creek	100%	8,524	3,544	11,718	4,283
	Spring Creek	1%	0	0		
	Spanish Fork River	4%	3,194	739		
Spanish Fork	Spanish Fork River	23%	17,461	4,040	17,461	4,040
Woodlands Hills	none		0	0	0	0
Benjamin/Lakeshore	Beer Creek	95%	0	0	13,856	3,206
	Spanish Fork River	19%	13,856	3,206		
Wetlands	Spanish Fork River	3%	2,487	575	2,487	575
Outside MNWA study area	Spanish Fork River	6%	4,514	1,044	4,514	1,044
Total			100,268	24,273	100,268	24,273
Total Inside the MNWA study area			95,754	23,229	95,754	23,229

¹The volume of water that flows during the irrigation season (Apr.-Oct.) in an average water year

²The volume of water that flows during the irrigation season (Apr.-Oct.) in a dry year.

Groundwater

Based on the USGS Technical Publication No. 111 by Brooks and Stolp (Stolp, 1995), the primary aquifer system in southern Utah Valley and Goshen Valley consists of unconsolidated deposits of sands and gravels interbedded with increasingly thick clay layers moving toward the central areas of the valley. The aquifer system near the mountains is generally unconfined and then transitions to a confined system as clay thickness increases away from the mountains. Groundwater flow through the groundwater system is generally from the higher precipitation areas in the mountains northward toward Utah Lake.

Recharge to the groundwater system is primarily from the following sources:

- Subsurface inflow of groundwater from the fractured bedrock formations in the mountains into the unconsolidated deposits.
- Infiltration of precipitation directly over unconsolidated deposits in the primary and secondary recharge areas.
- Seepage into the unconsolidated deposits from perennial and ephemeral streams
- Seepage into the unconsolidated deposits from canals and ditches
- Infiltration from irrigation

With the exception of subsurface inflow which enters the aquifer system through faults below ground surface, all of these recharge sources enter the aquifer system as direct seepage or infiltration from the ground surface. Direct infiltration and seepage from perennial and ephemeral streams are dependent upon climatic and seasonal weather fluctuations. However, seepage from canals and ditches and infiltration from irrigation are dependent upon irrigation practices. Many canals and ditches have historically been unlined and have provided significant recharge to the aquifer system. If canals or ditches are either lined with an impermeable (or low permeability) bottom or are piped, this recharge will be lost to the aquifer system.

Within the MNWA study area, subsurface inflow originates as infiltration from precipitation in the mountains adjacent to the unconsolidated aquifer. Subsurface inflow is higher in areas where the mountain tributary area is larger, where bedrock is more fractured, and where the mountains are higher in elevation resulting in more precipitation available for infiltration.

Because the quantity of subsurface inflow is related to the size of the mountain drainage supplying it, recharge through the study area was divided into groundwater flow areas based on the boundaries between mountain drainages, and based on the groundwater flow patterns modeled by Brooks and Stolp (Stolp, 1995). Groundwater flow areas are shown on Figure 5-3. Recharge from the surface is also divided between the groundwater flow areas. Although there is likely some minor shifting of the flow area boundaries based on seasonal and climatic fluctuations and by changing groundwater withdrawals, the general groundwater flow pattern remains fairly consistent over time.

The significance of the recharge areas to the MNWA members is that groundwater withdrawals within a groundwater flow area should not exceed the recharge to that flow area. Otherwise, it could lead to local groundwater mining. Also, if water rights points of diversion are moved to a new location, they should generally stay within the groundwater flow area that the original point of diversion was located within.

Table 5-6 summarizes the average annual groundwater recharge volume available to each groundwater flow area and is divided by subsurface inflow and recharge from the surface. These volumes were obtained from the 3-dimensional groundwater MODFLOW model of the Southern Utah Valley and Goshen Valley aquifers developed by Brooks and Stolp in 1995 (Stolp, 1995)

and updated by Brooks in 2013 (Brooks, 2013). Additional groundwater recharge information for the Goshen Valley was obtained from the Utah Geological Survey (UGS) based on a presentation to the DWRi titled “Goshen Valley Groundwater and Water Budget Update” showing preliminary results of their current groundwater study (DWRi and UGS, 2017). UGS reports similar groundwater recharge for Goshen Valley as Brooks and Stolp (1995) (Stolp, 1995) with the exception of subsurface inflow in the area north of Elberta. UGS reports that there is likely an additional approximately 4,500 ac-ft/year flowing underneath the Mosida Hills separating Cedar Valley from Goshen Valley that does not appear to be included in the recharge volumes used by Brooks and Stolp (DWRi and UGS, 2017). Table 5-6 also includes the estimated dry year groundwater recharge based on historical groundwater budgets presented by Brooks (Brooks, 2013). Brooks assumed subsurface inflow to remain fairly constant at the average rate in both wet and dry years. However, recharge from the surface fluctuated on an annual basis with the dry years as low as 59% of the average.

**TABLE 5-6
Annual Groundwater Recharge by Groundwater Flow Area**

Groundwater Flow Area (see Figure 5-3)	Subsurface Inflow (ac-ft/yr)	Recharge from Surface (ac-ft/yr)	Average Annual Recharge (ac-ft/yr)	Dry Year Annual Recharge (ac-ft/yr)
Spanish Fork	2,920	8,070	10,990	7,680
Salem / Woodland Hills / Elk Ridge	10,230	15,650	25,880	19,460
Payson / Santaquin	15,810	9,440	25,250	21,380
Santaquin / Genola / Goshen	2,600	14,130	16,730	10,940
Goshen Valley South	6,700	1,040	7,740	7,310
Goshen Valley North	5,920 ¹	170	6,090 ¹	6,020 ¹
Sub Total: (MNWA Boundaries)	44,180¹	48,500	92,680¹	72,790¹
<i>Springville / Mapleton (not within MNWA boundaries)</i>	<i>22,550</i>	<i>8,520</i>	<i>31,070</i>	<i>27,580</i>
TOTAL: (Southern Utah & Goshen Valleys)	66,730¹	57,020	123,750¹	100,370¹

¹ Includes 4,500 ac-ft/yr subsurface inflow from Cedar Valley (UGS, 2017)

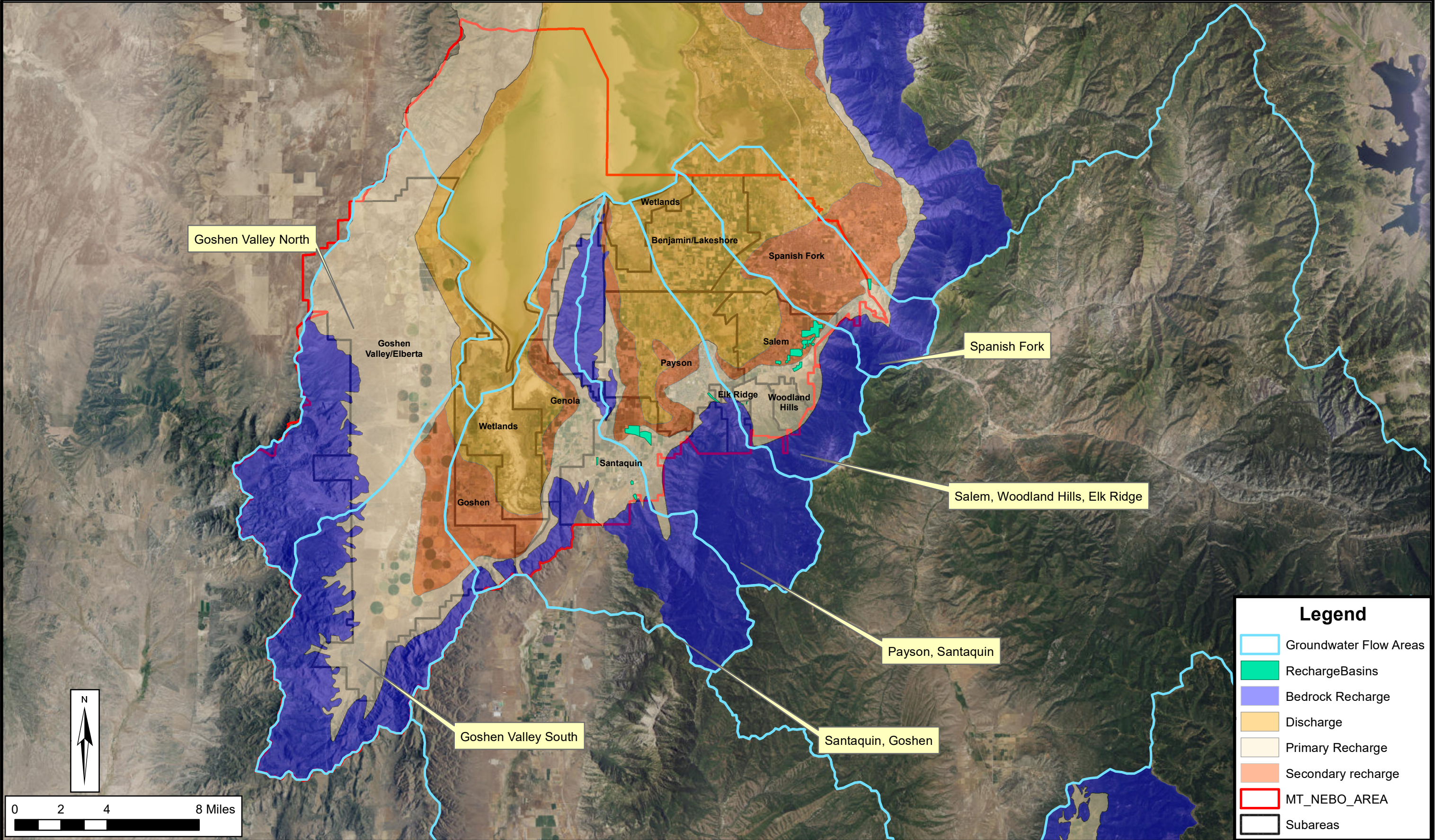
The groundwater volumes presented in Table 5-6 represent the total recharge available to the groundwater system in an average year within the indicated groundwater flow areas. According to the Division of Water Rights in their Utah/Goshen Valley Ground-Water Management Plan (DWRi, 2015), annual withdrawals are limited to an average of 118,000 ac-ft/yr within Southern Utah and Goshen valleys. If this were to occur, it would represent withdrawal of almost all of the average annual groundwater recharge for both valleys (see Table 5-6). However, some groundwater must be maintained through the system to sustain existing springs and to maintain stable groundwater levels within the aquifer. Therefore, it should not be assumed that the entire volume is available for discharge to wells.

Brooks (2013) summarized the average groundwater budget components for Southern Utah and Goshen Valleys from 1995 through 2013 (Brooks, 2013). Based on this data, approximately 25%

of the average annual recharge to the aquifer system is discharged to pumped wells, 40% is discharged to evapotranspiration and to Utah Lake, and the balance is

Figure 5-3

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**MT NEBO WATER AGENCY
REGIONAL WATER SUPPLY STUDY**

**GROUNDWATER RECHARGE
TO PRINCIPAL UNCONSOLIDATED AQUIFER**

**FIGURE
5-3**

discharged to springs, drains, and flowing wells. Increases in pumping from wells will result in a corresponding decrease in discharge to the remaining head-dependent components (i.e. discharge to evapotranspiration, Utah Lake, springs, drains, and flowing wells). The degree to which these components are affected depends on the volume of the increased pumping, the location of new well withdrawals, and climatic and seasonal weather conditions.

As MNWA entities plan for future sources, it is recommended that a study be completed for new sources to evaluate the local and regional impacts on the groundwater system from pumping the new wells. In addition to this, there are regulatory, political, and environmental issues that should be evaluated. Water rights will play an important role because of the numerous existing points of diversion within the study area as discussed in Chapter 4.

Due to the complexity of the technical, regulatory, political, and environmental factors associated with management of a regional groundwater system, it is difficult to assign a specific value to the total sustainable volume of groundwater that could be pumped from the aquifer. The scope of this study does not allow for an evaluation of the necessary magnitude to satisfactorily address all of these factors. However, on a conceptual basis, it is understood that there must be some groundwater held in reserve for discharge to springs, drains, etc. in order to maintain a balanced groundwater system and to prevent groundwater mining or flow reversal.

Brooks (2013) performed predictive modeling within Southern Utah Valley to determine the impact of increased well withdrawals (Brooks, 2013). Based on this modeling, increasing well pumping from 25% of the available recharge to about 65% of the total recharge resulted in maximum drawdown in the aquifer of about 400 ft below groundwater levels computed assuming current well pumping withdrawals. Average drawdown in the Southern Utah Valley area was between 20 and 50 ft and a large area had drawdowns over 50 ft. The lowering of the groundwater table resulted in some natural discharge areas no longer discharging groundwater. If the groundwater levels were lowered to this degree, there would be many existing wells that would either need to be deepened or would need to be abandoned. This is especially true near the mountain front where most of the additional withdrawals were simulated and, correspondingly, where the drawdown was the greatest (50 to 400 ft).

If well pumping within the MNWA study area was to increase within each of the subareas from 25% to 50% of the available recharge, and if the new withdrawals were spread across the study area, it would be expected that the drawdown on the aquifer would be around half of the drawdown simulated by Brooks (Brooks, 2013). This assumes a relatively linear response within the aquifer system.

The average annual recharge volume for each groundwater flow area was divided between each of the MNWA subareas that were located within the groundwater flow area. The division was based upon the percentage of the groundwater flow area that the subarea covered, the proximity of the subarea to the subsurface inflow from the mountain front, and whether the subarea was located within a primary recharge area, secondary recharge area, or discharge area of the aquifer. Larger subareas received a corresponding larger portion of the recharge from surface sources. Subareas within primary recharge areas received a larger portion of recharge than subareas within secondary recharge or discharge areas. Finally, subareas that are closer to the subsurface inflow from the mountain front received a large portion of this recharge. Table 5-7 summarizes the division of recharge between the MNWA subareas. It also shows the total future discharge volume for each subarea assuming that 50% of the average annual recharge is discharged to wells.

This study assumes that the amount of groundwater that is available to be pumped from wells is about 45,000 ac-ft per year as shown in Table ES-8. Pumping greater than 45,000 ac-ft per year

or more than the available groundwater for well pumping as shown in Table 5-7 for each subarea, would result in significant impacts to groundwater levels.

**Table 5-7
Available Groundwater for Well Pumping by MNWA Subarea**

MNWA Subareas	Average Annual Groundwater Recharge (ac-ft/yr)	Available Groundwater for Well Pumping (ac-ft/yr)
Benjamin/Lakeshore	4,700	2,350
Elk Ridge	6,290	3,150
Genola	3,970	1,990
Goshen	2,080	1,040
Goshen Valley/Elberta	15,900 ¹	7,950 ¹
Payson	14,980	7,490
Salem	12,360	6,180
Santaquin	15,540	7,770
Spanish Fork	10,390	5,200
Wetlands	2,380	-- ²
Woodland Hills	4,090	2,050
TOTAL:	92,680¹	45,170¹

¹ Includes subsurface inflow from Cedar Valley (UGS, 2017)

² No pumping from wetlands.

Springs

Flow from springs within southern Utah Valley or Goshen Valley is groundwater discharge from the primary aquifer system and is accounted for as groundwater supply in this study. Flow from mountain springs that feed rivers and streams entering Utah Valley and Goshen Valley, is measured as flow in the rivers and streams. Flow from mountain springs that is diverted for use in the MNWA study area prior to entering rivers and streams is considered a unique part of the total water supply. These springs are referred to as mountain springs in Table 5-8 and are listed according to subarea with their corresponding dry year and average annual flow and volume. The dry year flow listed is the 25 year low flow value. Dry and average flow values were supplied by the municipalities diverting the mountain spring water or through DWRi records (DWRi, 2017).

Summary of Groundwater and Surface Water Resources

A summary of groundwater, mountain spring, and river water available to the MNWA study area is shown in Table 5-9 for a dry year and Table 5-10 for an average year. The volume of river water only includes flow during the irrigation season.

**Table 5-8
Supply from Mountain Springs**

Subarea	Spring Name	Average Annual Flow Capacity (gpm)	Average Annual Volume (ac-ft)	Dry Year Flow Capacity (gpm)	Dry Year Annual Volume (ac-ft)
Goshen	Ercanbrack Spring	200	320	200	320
Payson	Canyon Springs	1,540	2,480	700	1,130
Payson	Dixon Spring	60	90	50	80
Payson	Picayune Spring	60	100	10	20
Salem	Water Canyon Upper Spring	180	280	50	80
Salem	Water Canyon Springs Lower Spring	600	970	200	320
Santaquin	Gravity Springs	900	1,450	900	1,450
Santaquin	Spring #1	80	130	80	130
Spanish Fork	Crab Creek Springs	1,250	2,020	900	1,450
Spanish Fork	Cold Springs	6,500	8,830	6,000	8,000
Spanish Fork	Malcolm Springs	2,300	2,800	2,300	2,800
Total		13,670	19,470	11,390	15,780

As shown in Table 5-8, over 19,000 ac-ft of mountain spring water is diverted to the MNWA study area in an average year and over 15,800 is diverted during a dry year.

**Table 5-9
Dry Year Supply Summary Without Imported Water**

Subarea	Available Annual Groundwater for Well Pumping (ac-ft)	Irrigation Season River/Creek Dry Year Volume ¹ (ac-ft)	Annual Mountain Spring Average Year Volume (ac-ft)	Irrigation Season Dry Year Water Supply without Imported Water ¹ (ac-ft)
	Existing	Existing	Existing	Existing
Benjamin/Lakeshore	2,350	3,206	0	5,556
Elk Ridge	3,150	0	0	3,150
Genola	1,990	1,606	0	3,596
Goshen	1,040	193	320	1,553
Goshen Valley/Elberta	7,950	585	0	8,535
Payson	7,490	7,011	1,230	15,731
Salem	6,180	1,729	400	8,309
Santaquin	7,770	4,283	1,580	13,573
Spanish Fork	5,200	4,040	12,250	21,490
Wetlands	0	575	0	575
Woodland Hills	2,050	0	0	2,050
Total MNWA Area	45,170	23,229	15,780	84,119

¹River volume of water that flows during the irrigation season (Apr.-Oct.) in a dry water year

**Table 5-10
Average Year Supply Summary without Imported Water**

Subarea	Available Annual Groundwater for Well Pumping (ac-ft)	Irrigation Season River/Creek Average Year Volume ¹ (ac-ft)	Annual Mountain Spring Average Year Volume (ac-ft)	Irrigation Season Groundwater and River/Creek Average Year Water Supply ¹ (ac-ft)
	Existing	Existing	Existing	Existing
Benjamin/Lakeshore	2,350	13,856	0	16,206
Elk Ridge	3,150	0	0	3,150
Genola	1,990	6,943	0	8,933
Goshen	1,040	2,364	320	3,724
Goshen Valley/Elberta	7,950	7,141	0	15,091
Payson	7,490	26,313	2,670	36,473
Salem	6,180	7,472	1,250	14,902
Santaquin	7,770	11,718	1,580	21,038
Spanish Fork	5,200	17,461	13,650	36,311
Wetlands	0	2,487	0	2,487
Woodland Hills	2,050	0	0	2,050
Total MNWA Area	45,170	95,754	19,470	160,364

¹River volume of water that flows during the irrigation season (Apr.-Oct.) in a dry water year

IMPORTED WATER

Central Utah Project Water

The municipalities in the MNWA study area, Elk Ridge, Payson, Santaquin, Spanish Fork, Salem, Woodland Hills, Genola, and Goshen, have contracted with the CUWCD for CUP water to be delivered from the Colorado River Basin. These municipalities along with Mapleton and Springville, formed the South Utah Valley Municipal Water Association (SUVMWA) and petitioned the CUWCD for water. On March 15, 2005, each member municipality of SUVMWA signed a contract for a combined total annual, perpetual allotment of 30,000 ac-ft of water to be carried by the Utah Lake Drainage Basin Water Delivery System of the Bonneville Unit of the Central Utah Project (ULS) upon completion. A copy of this March 15, 2005 contract is found in Appendix K.

SUVMWA also has a previous contract for 1,590 ac-ft of ULS water for municipal and industrial use through a separate agreement that was initially delivered through the Diamond Fork Project to the Spanish Fork River. In 2002, Spanish Fork City returned 1,000 ac-ft of the 1,590 ac-ft as water saved through conservation to be used as June Sucker flows in exchange for a grant to build a pressurized irrigation system. In 2003, Payson City did the same with 500 ac-ft of the 1,590 ac-ft. Santaquin and Salem also have agreements for 1,000 ac-ft each of the 30,000 acre-foot petition for returning conservation water. Subtracting this returned conservation water from the 1,590 acre-foot agreement and 30,000 acre-foot agreement leaves the remaining volume of water that the municipalities have agreed to pay CUWCD for and use as secondary water in their

service areas. Table 5-11 shows the amount of CUP water each city has contracted to purchase. For municipalities in the MNWA study area this is a total of 16,633 ac-ft of water.

**Table 5-11
Central Utah Project ULS Water**

City/Town	1998 ¹ Agreement (%)	CUP 1,590 ac-ft Allotment (ac-ft)	2005 ² Agreement (%)	CUP 30,000 ac-ft Allotment (ac-ft)	Given Back	Total
Spanish Fork	28.33%	450.45	27.90%	8370	1,000	7,820
Salem	5%	79.50	6.03%	1809	1,000	889
Woodland Hills	1.25%	19.88	1.30%	390	0	410
Elk Ridge	1.25%	19.88	2.53%	759	0	779
Payson	18.34%	291.61	17.53%	5259	500	5051
Santaquin	5%	79.50	6.03%	1809	1,000	889
Goshen	1.25%	19.88	1.32%	396	0	416
Genola	1.25%	19.88	1.20%	360	0	380
Springville ³	31.66%	503.39	28.15%	8445	3,500	5448
Mapleton ³	6.67%	106.05	8.01%	2403	1,500	1009
Total	100%	1590.00	100.00%	30000	8,500	23,090
Total for MNWA study area	61.67%	980.55	63.84%	19152	3,500	16,633

¹In 1998, South Utah Valley Municipal Water Association (SUVMWA) member municipalities signed a petition to Central Utah Water Conservancy District (CUWCD) for a perpetual, annual distribution of 1,590 ac-ft of water from the Utah Lake Drainage Basin Water Delivery System.

²In 2005, SUVMWA member municipalities signed a petition to CUWCD for a perpetual, annual distribution of 30,000 ac-ft of water from the Utah Lake Drainage Basin Water Delivery System.

³Springville and Mapleton are members of SUMVWA but are outside the MNWA study area.

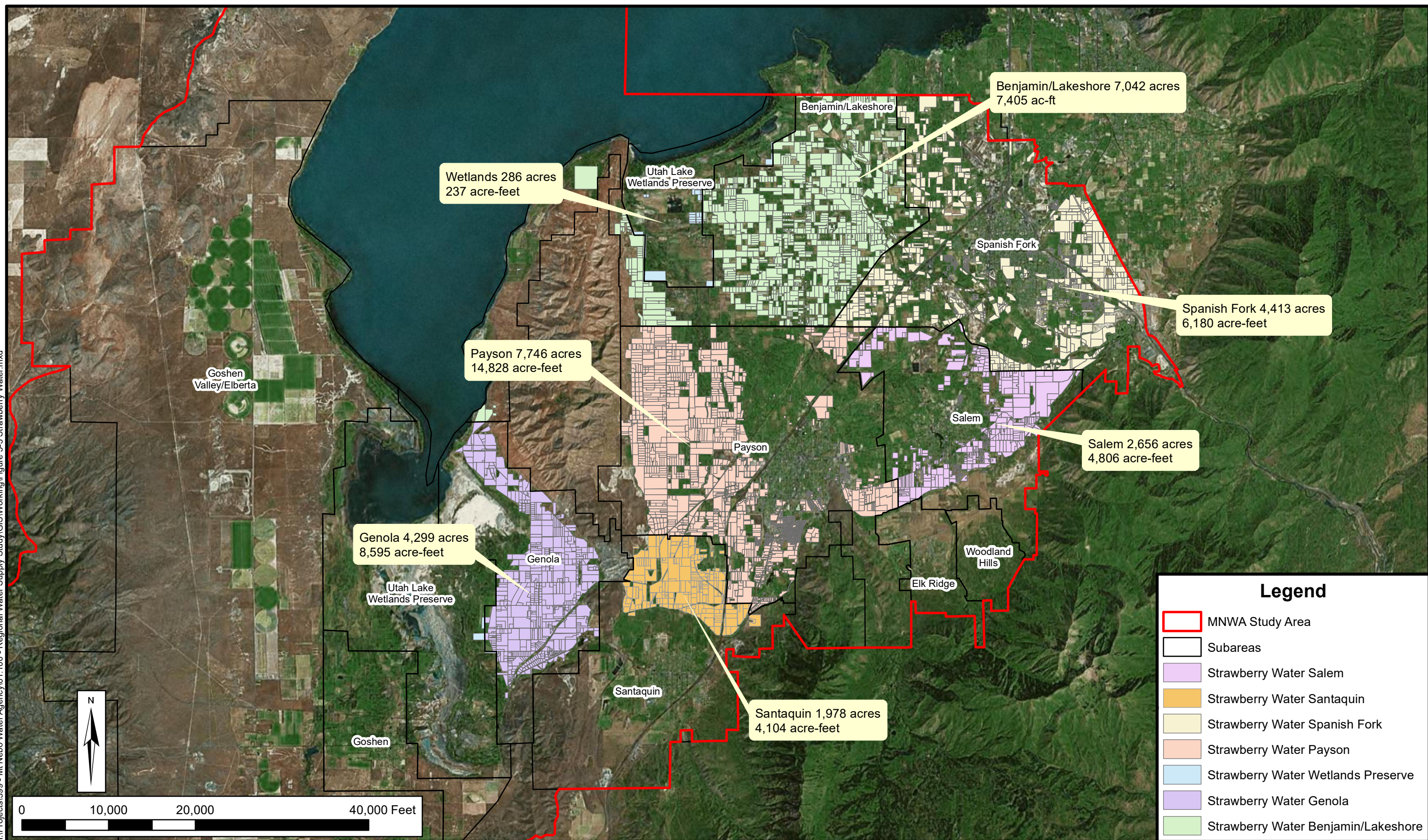
Strawberry Valley Project Water

The SVP is a U.S. Department of the Interior, USBR irrigation project that conveys water in the Strawberry Valley in the Colorado River Basin to the Bonneville Basin. SWUA operates the project and manages the water rights through shares.

To determine the amount of Strawberry Water used in the MNWA study area, a map provided by SWUA showing the location of land irrigated with Strawberry Water and the corresponding number of shares of stock allocated to each area, was overlain in GIS with the MNWA study area boundaries as shown in Figure 5-4. The total amount of acres in the MNWA study area irrigated with SWUA water is about 28,420 acres from 46,155 shares. Assuming one acre-foot of water compares to one share of stock, 46,155 ac-ft of SWUA water is used to irrigate in the MNWA study area.

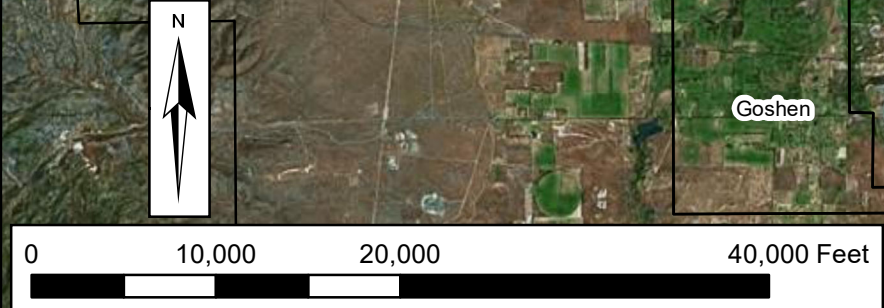
As shown in Table 5-9, more than half of the land in some subareas, is irrigated agricultural land and in some cases such as Genola, SWUA water is the sole source for irrigation water.

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Legend

- MNWA Study Area
- Subareas
- Strawberry Water Salem
- Strawberry Water Santaquin
- Strawberry Water Spanish Fork
- Strawberry Water Payson
- Strawberry Water Wetlands Preserve
- Strawberry Water Genola
- Strawberry Water Benjamin/Lakeshore



MT NEBO WATER AGENCY

STRAWBERRY VALLEY PROJECT WATER USE

FIGURE 5-4

Table 5-12 lists the amount of acres watered with SWUA water for each subarea and the corresponding annual amount of SWUA water used.

**Table 5-12
Strawberry Valley Project Water**

MNWA Regional Water Study Subareas	Subarea Area (acres)	Irrigated Agriculture Land¹ (acres)	SVP Water Use² (acres)	SVP Water Use³ (ac-ft)
Benjamin/Lakeshore	16,716	10,610	7,042	7,405
Elk Ridge	2,106	9	0	0
Genola	9,473	4,266	4,299	8,595
Goshen	4,931	2,339	0	0
Goshen Valley/Elberta	70,074	13,370	0	0
Payson	19,987	10,180	7,746	14,828
Public Lands/Other	76,555	0	0	0
Salem	8,956	3,528	2,656	4,806
Santaquin	12,081	3,497	1,978	4,104
Spanish Fork	15,987	6,948	4,413	6,180
Utah Lake	37,468	0	0	0
Wetlands	16,782	909	286	237
Woodlands Hills	1,649	0	0	0
MNWA Study Area Total	292,765	55,656	28,420	46,155

¹ 2016 Water Related Land Use Map published by the Utah DWR

² Strawberry Water Users Association database from April 2017

³ Assume one share is equivalent to one ac-ft

The Strawberry Water shares tend to be more reliable during lower precipitation years because the water rights are based on stored water. Water can be stored in wet years and used in dry years.

Summary of Water Resources

A significant difference in available water supply exists between an average year and a dry year in the MNWA study area due to the amount of available surface water during the irrigation season in rivers and creeks and some mountain springs. During a dry year, surface recharge to groundwater is also decreased but in any given year, the groundwater available for well pumping is an average amount. As shown in Table 5-13 and Table 5-14, imported Strawberry Valley Project and future CUP water is stored water with the same availability in a dry or average year.

**Table 5-13
Dry Year Supply**

Subarea	Irrigation Season Dry Year Water Supply without imported water (ac-ft)	Strawberry Valley Project Annual Water Use*** (ac-ft)	Central Utah Water (CUP) Project Annual Allotment (ac-ft)	Dry Year Supply (ac-ft)
	Existing	Existing	Future	Future
Benjamin/Lakeshore	5,556	7,405	0	12,961
Elk Ridge	3,150	0	779	3,929
Genola	3,596	8,595	380	12,571
Goshen	1,553	0	416	1,969
Goshen Valley/Elberta	8,535	0	0	8,535
Payson	15,731	14,828	5,051	35,610
Salem	8,309	4,806	889	14,003
Santaquin	13,633	4,104	889	18,625
Spanish Fork	21,490	6,180	7,820	35,490
Wetlands	575	237	0	812
Woodland Hills	2,050	0	410	2,460
Total MNWA Area	84,179	46,155	16,633	146,966

As shown in Table 5-13 and 5-14, the subareas of Elk Ridge, Goshen, Goshen Valley/Elberta, and Woodland Hills do not have access to Strawberry Valley Project water and are not expected to have access to this water in the future. It is possible, however, that Goshen and Goshen Valley/Elberta may have access to SVP water in the future. The amount of water listed as CUP water is the future amount of water available to the subareas listed according to current contracts.

**Table 5-14
Average Year Supply**

Subarea	Irrigation Season Average Year Water Supply without Imported Water (ac-ft)	Strawberry Valley Project Annual Water Use (ac-ft)	Central Utah Water (CUP) Project Annual Allotment (ac-ft)	Irrigation Season Average Year Supply (ac-ft)
	Existing	Existing	Future	Future
Benjamin/Lakeshore	16,206	7,405	0	23,612
Elk Ridge	3,150	0	779	3,929
Genola	8,933	8,595	380	17,908
Goshen	3,724	0	416	4,139
Goshen Valley/Elberta	15,091	0	0	15,091
Payson	36,473	14,828	5,051	56,352
Salem	14,902	4,806	889	20,597
Santaquin	21,068	4,104	889	26,060
Spanish Fork	36,311	6,180	7,820	50,311
Wetlands	2,487	237	0	2,724
Woodland Hills	2,050	0	410	2,460
Total MNWA Area	160,394	46,155	16,633	223,182

PROJECTED WATER SURPLUSES AND SHORTAGES

An evaluation of demand and supply is useful in addressing current requirements and in planning for future water supply needs. Table 5-15 provides a summary of municipal demand, agricultural demand, dry year water supply, and average year water supply for each subarea. As shown in the table, the current total water demand within the MNWA study area is approximately 190,000 ac-ft per year. This demand includes 23,000 ac-ft of municipal demand and 167,000 ac-ft of agricultural demand. The future (2060) total water demand is reduced to about 181,000 ac-ft. This reduced demand is due to projected future land use changes of agricultural land being developed for residential, commercial, and industrial use. The water requirement per gross acre of urbanized land is less than the water requirement for irrigated agriculture. Present and future municipal water demands are based on the assumption that the State's goal of reducing per capital water use by 25 percent has been achieved. If this water conservation goal is not achieved, the municipal demand would be higher.

The table shows an average year total water supply of about 223,000 ac-ft per year. This total includes surface water from rivers and streams, springs, and available groundwater. As discussed earlier, the available groundwater for withdrawal from wells is assumed to be 50 percent of the average annual aquifer recharge or about 45,000 ac-ft per year. The present level of groundwater pumping is about half of that amount which suggests that there is an additional 22,500 acre-feet of available groundwater that could be developed.

**Table 5-15
Demand and Supply Summary**

Subarea	Municipal Demand ¹ (ac-ft)		Agricultural Demand ² (ac-ft)		Total Municipal and Agricultural Demand (ac-ft)		Dry Year Supply ⁵ (ac-ft)	Average Year Supply ⁵ (ac-ft)
	Present	Future	Present	Future	Present	Future	Future	Future
Benjamin/Lakeshore	562	3,935	31,830	23,333	32,392	27,268	12,961	23,612
Elk Ridge	685	1,651	0	0	685	1,651	3,929	3,929
Genola	389	2,510	12,798	7,316	13,187	9,826	12,571	17,908
Goshen	292	535	7,017	6,404	7,309	6,939	1,969	4,139
Goshen Valley/Elberta ³	110	15,596	40,110	40,110	40,220	55,706	8,535	15,091
Payson ⁴	6,800	16,645	30,540	9,522	37,340	26,167	35,610	56,352
Salem	1,774	9,867	10,584	2,399	12,358	12,266	14,003	20,597
Santaquin	2,684	11,316	10,491	2,637	13,175	13,953	18,625	26,060
Spanish Fork	9,805	19,114	20,844	4,057	30,649	23,171	35,490	50,311
Wetlands	0	0	2,727	2,727	2,727	2,727	812	2,724
Woodland Hills	342	1,158	0	0	342	1,158	2,460	2,460
Total	23,443	82,327	166,941	98,506	190,384	180,833	146,966	223,182

¹The demand for outdoor use assumes conservation techniques including metering.

²Agricultural water is water used to irrigate that is not from a municipal water system. The agricultural demand is based on the irrigated acreage shown in the Water Related Land Use Map published annually by the Utah DWR and a water requirement of 3.0 ac-ft per acre.

³Goshen Valley/Elberta future demand includes 10,000 ac-ft of future large industrial use. Goshen Valley groundwater supply includes subsurface inflow from Cedar Valley.

⁴Payson outdoor municipal water requirement includes 1,681 ac-ft of demand for Nebo Power Plant.

⁵Supply includes surface water supply during the irrigation season (Apr.-Oct.), springs, available groundwater for well pumping, Strawberry Valley Project Water, and Central Utah Project water allotments.

In dry years the total water supply is diminished to about 147,000 ac-ft or about 65 percent of the average year amount. This decrease is due primarily to a reduction of surface flows in rivers and streams.

A comparison of demand with available water supply shows that some subareas enjoy a surplus water supply in average and dry years while other subareas have shortages in average and dry years. Table 5-16 shows water surpluses and shortages of each subarea in average and dry years. Overall, in average years there is a surplus of nearly 33,000 ac-ft based on the current level of development and a shortage of about 43,000 ac-ft in dry years. With future development the average year surplus is about 42,000 ac-ft and the dry year shortage is about 34,000 ac-ft.

**Table 5-16
Water Supply¹ Surplus and Shortage in Dry and Average Years**

Subarea	Dry Year Surplus or Shortage (+/-) ² (ac-ft)		Average Year Surplus or Shortage (+/-) ² (ac-ft)	
	Present	Future	Present	Future
Benjamin/Lakeshore	-19,431	-14,307	-8,780	-3,656
Elk Ridge	3,244	2,278	3,244	2,278
Genola	-616	2,745	4,721	8,082
Goshen	-5340	-4970	-3170	-2,800
Goshen Valley/Elberta	-31,685	-47,171	-25,130	-40,616
Payson	-1,730	9,442	19,012	30,184
Salem	1,644	1,737	8,238	8,331
Santaquin	5,450	4,672	12,885	12,107
Spanish Fork	4,841	12,319	19,662	27,140
Wetlands	-1,915	-1,915	-3	-3
Woodland Hills	2,118	1,302	2,118	1,302
Total MNWA Area	-43,418	-33,866	32,797	42,349

¹ The supply includes the available groundwater for well pumping, irrigation season river volume, and mountain spring volume.

² A surplus water supply is represented by a positive number (+) and a shortage is represented by a negative number (-).

Table 5-17 shows a comparison of indoor municipal demand to mountain spring and groundwater supply in a dry and average year, without imported water. Mountain springs and groundwater are the sources of supply for drinking water within the MNWA study area. As shown in the table there is sufficient spring water and groundwater supply to meet existing and future indoor water demands.

**Table 5-17
Spring Water and Groundwater Supply Surplus and Shortage
Compared to Indoor Municipal Demand**

Subarea	Dry Year Surplus or Shortage (+/-) ¹ (ac-ft)		Average Year Surplus or Shortage (+/-) ¹ (ac-ft)	
	Present	Future	Present	Future
Benjamin/Lakeshore	2,110	668	2,110	668
Elk Ridge	2,857	2,446	2,857	2,446
Genola	1,824	949	1,824	949
Goshen	1235	1,131	1,235	1,131
Goshen Valley/Elberta	7,903	5,558	7,903	5,558
Payson	6,085	1,016	7,525	2,456
Salem	5,822	2,362	6,672	3,212
Santaquin	8,017	3,831	8,017	3,831
Spanish Fork	12,772	8,102	14,172	9,502
Wetlands	0	0	0	0
Woodland Hills	1,904	1,555	1,904	1,555
Total MNWA Area	50,529	27,618	54,219	31,308

¹ A surplus water supply is represented by a positive number (+) and a shortage is represented by a negative number (-).

Another useful comparison is an evaluation of the municipal water systems capacities against present and future water demands. In examining municipal water systems it is important to note that Elk Ridge, Goshen, and Woodland Hills have only a drinking water system and are not expected to add a secondary system in the future. In these areas, the drinking water system serves both indoor and outdoor municipal demands.

Table 15-18 shows capacity surpluses and shortages for each subarea. The Benjamin/Lakeshore subarea does not currently have municipal infrastructure within its boundaries. In this subarea indoor water demands are met from individual domestic wells at each residence. This pattern is expected to continue into the future. In the future, additional indoor capacity will be required to meet the indoor municipal demands for Genola, Payson, Santaquin, and Woodland Hills.

In comparing outdoor municipal demand to outdoor municipal capacity, Genola, and Goshen Valley/Elberta show existing small shortages for capacity of 220 and 60 ac-ft, respectively. In the Benjamin/Lakeshore subarea, watering of landscapes around homes is also provided by domestic wells. Future shortages in outdoor municipal capacity ranging from 1,470 to 13,204 ac-ft are shown for the same subareas with shortages in Santaquin as well. These numbers suggest that additional capacity will need to be developed to meet future outdoor municipal demands.

**Table 5-18
Municipal Capacity Compared to Municipal Demand**

Subarea	Indoor Capacity Surplus or Shortage (+/-) (ac-ft)		Outdoor Capacity ¹ Surplus or Shortage (+/-) (ac-ft)		Total Capacity Surplus or Shortage (+/-) (ac-ft)	
	Existing	Future	Existing	Future	Existing	Future
Benjamin/Lakeshore	-240	-1,682	-322	-2,253	-1,922	-3,935
Elk Ridge ²	1,351	385	0	0	1,351	385
Genola	865	-10	-223	-1,469	642	-1,099
Goshen ²	383	140	0	0	383	140
Goshen Valley/Elberta ³	1,453	-892	-63	-13,204	1,390	-14,096
Payson ⁴	3,011	-2,058	10,199	5,423	13,210	3,365
Salem	4,656	1,196	10,120	5,487	14,776	6,683
Santaquin	3,768	-418	125	-4,321	3,893	-4,739
Spanish Fork	8,372	3,702	4,913	274	13,285	3,976
Wetlands	N/A	N/A	N/A	N/A	N/A	N/A
Woodland Hills ²	679	-137	0	0	679	-137
Total MNWA Area	24,298	226	24,750	-10,062	47,687	-9,456

¹The demand for outdoor use assumes conservation techniques including metering.

²It is assumed that Elk Ridge, Goshen, and Woodland Hills will continue to meet indoor and outdoor water demands with their drinking water system in the future.

³Goshen Valley/Elberta future demand includes 10,000 ac-ft of future large industrial use.

⁴Payson existing and future demand includes 1,681 ac-ft from the Nebo Power Plant.

CHAPTER 6 – CONCEPTUAL PLANS

INTRODUCTION

This chapter summarizes conceptual plans that have been developed to address the water-related needs of communities, industry, and agriculture within the MNWA study area. These needs are based on communications with local stakeholders, working with the MNWA Technical Committee, and on analysis of information collected and summarized in this report. These conceptual plans are just that - conceptual. Additional studies are warranted to determine the feasibility of each conceptual plan.

NON-STRUCTURAL MEASURES

Water Conservation

The State of Utah has established a goal to reduce the 2000 per capita water demand from public community systems by at least 25 percent by 2025. Specifically, the average statewide 2000 per capita demand will need to decline from 295 gallons per capita per day (gpcd) to a sustained 220 gpcd or less (DWR, 2014). For a given system, per capita water use includes all uses such as residential indoor, outdoor, commercial, and industrial. The water demand projections used in this study are within the State's goal. Therefore, in order to ensure an adequate water supply for the future, each public water system within the MNWA study area must regularly monitor its water use and update its water conservation plan. It is imperative that per capita water use is reduced to meet the goal. Otherwise, water supplies will run short and the area will suffer water shortages.

In order to better manage water and achieve significant water conservation, there must be accountability for water use at all levels. Water system managers need accurate water measurement to identify inefficiencies within the systems. Individual end users need to be held accountable for the quantity of water they use which requires water meters on each connection. Water rate structures should be designed to promote water conservation and efficient water use.

Water Rights Acquisition and Management

Information gathered in this study shows that sufficient water rights currently exist to provide for the present and future needs of the MNWA study area. As growth occurs, however, about 27,000 ac-ft of water rights will need to be reallocated from their previous uses to municipal uses. Each city will need to have an aggressive program for acquiring water supply. Such a program could include water rights exaction on new development and/or an on-going program of purchasing water rights. The cost of water right purchases could potentially be offset by impact fees. Also, cities should regularly monitor water right applications and file protests as needed to ensure that proposed water right changes do not adversely affect them.

This study assumes that future municipal water rights will be acquired from within the MNWA study area as land use converts from agricultural to municipal. Acquiring water rights outside the MNWA study area should not be necessary since there are adequate existing water rights to provide for existing and future uses.

In some subareas groundwater is over appropriated when compared to the recharge. Care must be taken to keep groundwater withdrawals in balance with recharge to avoid severe localized impacts. Before accepting groundwater rights for new development, cities must understand and carefully evaluate the groundwater balance.

Expanded role of MNWA

MNWA members have discussed the need for a district or agency to help cities and irrigation companies manage their water and water rights and to pool resources. The MNWA could potentially fill this role. Specific functions that the agency could provide include the following.

- Facilitate pooling of resources to avoid or defer high-cost capital projects
- Help manage water rights by monitoring water right change applications and filing protests as needed to protect interests of MNWA members
- Help acquire water rights and hold ownership in behalf of cities
- Help manage surface water and groundwater resources to foster better conjunctive use.
 - Use surface water first to prevent it from going to Utah Lake where it is lost to MNWA members
 - Use surplus surface water in groundwater recharge projects to improve aquifer levels
 - Preserve groundwater for drinking water and as an emergency secondary water supply
- Facilitate and assist cities with groundwater recharge projects
- Help provide emergency redundancy for cities to mitigate risk
- Facilitate agreements with agricultural interests for emergency water supplies during extreme drought conditions

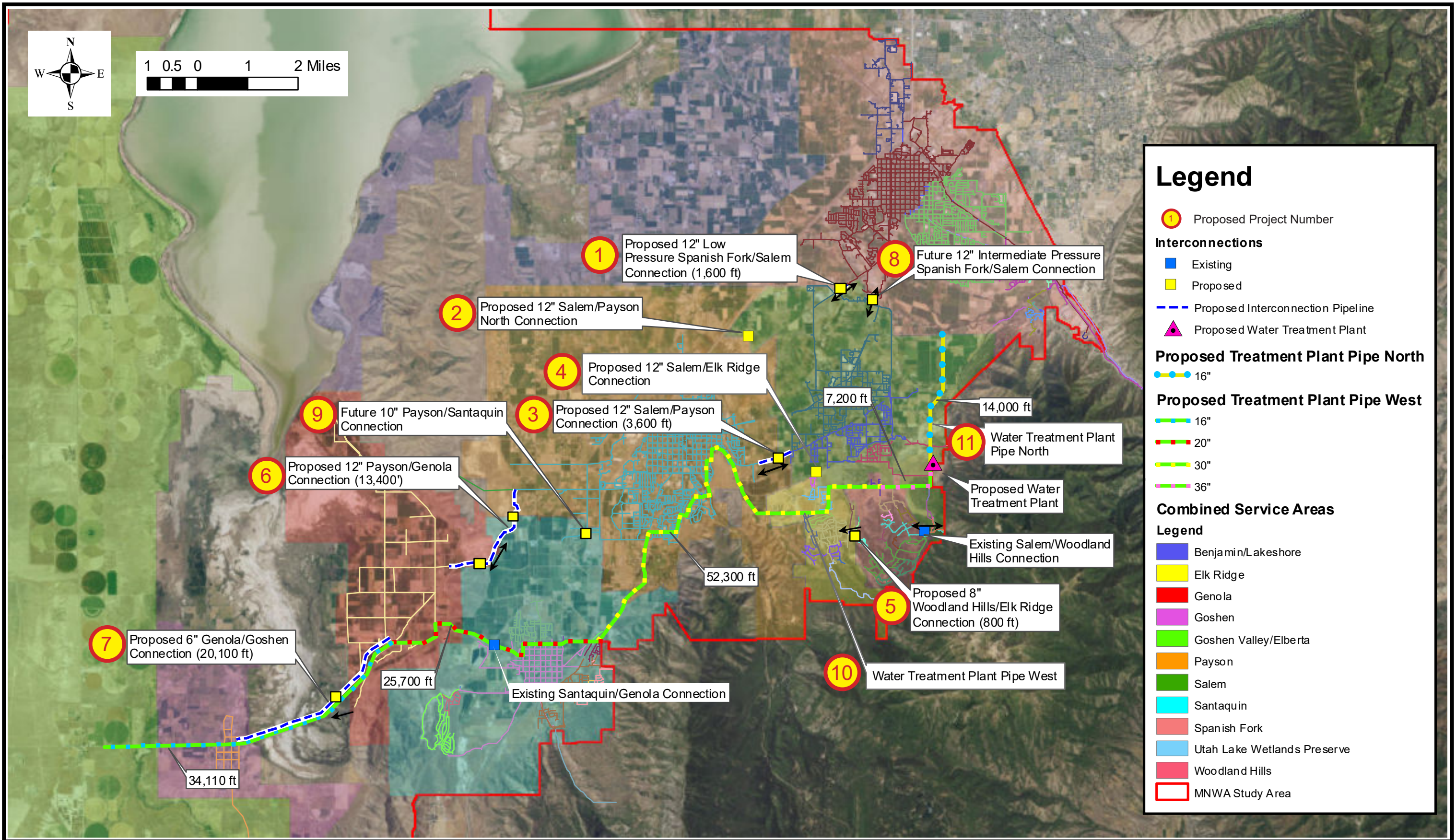
A careful review of the MNWA legal structure is needed to ensure that MNWA has authority to provide these functions. Additionally, discussions will be required with elected officials of MNWA's member agencies to garner support to the expanded MNWA role.

STRUCTURAL MEASURES

Drinking Water Facilities

Interconnections between Cities – To help minimize the risk of disruption to service caused by well or pump failures, transmission line breaks, or extraordinary maintenance, interconnections are proposed between the cities' water systems. These interconnections could also be used to allow cities to share water sources, particularly water associated with SUVMWA- or MNWA-owned water rights. Additionally, these interconnections could enhance conjunctive use of surface water and groundwater by allowing surface water to be used before groundwater, when available.

These interconnections would be made at strategic locations where pressure zones are compatible and pipes are of adequate size to provide significant emergency water flow. To evaluate the effectiveness of each interconnection, HAL obtained the hydraulic models for each city's water system and combined them into a single hydraulic model. This combined model provides a useful tool that was used to analyze the water systems collectively and individually. Each interconnection includes piping, valves, and a meter vault with automated SCADA data collection. Proposed interconnection projects are shown in Figure 6-1 as projects 1 through 9 and are summarized in Table 6-1.



Legend

- ① Proposed Project Number

Interconnections

- Existing
- Proposed
- - - Proposed Interconnection Pipeline
- ▲ Proposed Water Treatment Plant

Proposed Treatment Plant Pipe North

- 16"

Proposed Treatment Plant Pipe West

- 16"
- 20"
- 30"
- 36"

Combined Service Areas

Legend

- Benjamin/Lakeshore
- Elk Ridge
- Genola
- Goshen
- Goshen Valley/Elberta
- Payson
- Salem
- Santaquin
- Spanish Fork
- Utah Lake Wetlands Preserve
- Woodland Hills
- MNWA Study Area

**Table 6-1
Proposed Drinking Water System Interconnection Projects**

Project Number	Name	Description
1	Spanish Fork/Salem Low Pressure Zone Connection	1,600 l.f. of 12-inch-diameter PVC pipe, 8-inch magnetic flow meter, SCADA and electrical equipment
2	Salem/Payson North Connection	250 l.f. of 12-inch-diameter PVC pipe, 8-inch magnetic flow meter, SCADA and electrical equipment
3	Salem/Payson Connection	3,600 l.f. of 12-inch-diameter PVC pipe, 8-inch magnetic flow meter, SCADA and electrical equipment
4	Salem/Elk Ridge Connection	250 l.f. of 12-inch-diameter PVC pipe, 8-inch magnetic flow meter, SCADA and electrical equipment
5	Woodland Hills/Elk Ridge Connection	800 l.f. of 8-inch-diameter PVC pipe, 4-inch magnetic flow meter, SCADA and electrical equipment
6	Payson/Genola Connection	13,400 l.f. of 12-inch-diameter PVC pipe, 8-inch magnetic flow meter, SCADA and electrical equipment
7	Genola/Goshen Connection	20,100 l.f. of 6-inch-diameter PVC pipe, 4-inch magnetic flow meter, SCADA and electrical equipment
8	Spanish Fork/Salem Intermediate Pressure Zone Connection	500 l.f. of 12-inch-diameter PVC pipe, 8-inch magnetic flow meter, SCADA and electrical equipment
9	Payson/Santaquin Connection	500 l.f. of 10-inch-diameter PVC pipe, 6-inch magnetic flow meter, SCADA and electrical equipment

New Drinking Water Wells – As shown in Table 5-17, Genola, Payson, Santaquin, and Woodland Hills will require additional source capacity to be developed for their drinking water systems. One alternative means of developing this capacity is to drill new wells. For Payson, the additional 2,058 ac-ft of source capacity could be provided by a new 18-inch-diameter well. For Santaquin, the 354 ac-ft of needed source capacity could be provided by a new 10-inch-diameter well. For Woodland Hills, 137 ac-ft of new source capacity could be provided by a new 8-inch-diameter well.

The Benjamin/Lakeshore subarea shows a deficit of 1,682 ac-ft of source capacity. However, since this area is projected to retain its rural, agricultural status, additional drinking water source capacity for this area would likely be provided by drilling a new private domestic well with each new residence constructed. Therefore, no capital projects are shown for that subarea.

CUWCD Water Treatment Plant – CUWCD is considering construction of a water treatment plant within the MNWA study area. This treatment plant could provide additional drinking water source capacity. CUWCD has acquired a site in the southeast portion of Salem for the facility. This site is shown in Figure 6-1. This location will allow raw water to be delivered through the Spanish Fork-Santaquin Pipeline using the available pressure in the pipeline. The elevation of the

treatment plant site also would allow deliver of treated water to MNWA cities by gravity pressure without pumping. CUWCD would construct, own, and operate the treatment plant. Capital costs and annual operation and maintenance costs would be repaid through water purchase contracts. Due to the high cost of treating surface water, MNWA cities would likely maximize their use of groundwater before contracting for treated surface water.

Water Treatment Plant Pipelines – Two pipelines are proposed to deliver treated drinking water from the CUWCD water treatment plant. These pipelines could also facilitate the cities’ ability to share other drinking water sources. The Water Treatment Plant Pipe West will extend from the treatment plant in Salem westward through Salem, Woodland Hills, Elk Ridge, Payson, Santaquin, Genola, and Goshen, ending in the Elberta area at the Goshen Valley Local District. The pipeline will include 7,200 linear-feet of 36-inch-diameter PVC pipe, 52,300 linear-feet of 30-inch-diameter PVC pipe, 25,700 linear ft of 20-inch-diameter PVC pipe and 34,220 linear ft of 16-inch-diameter PVC pipe.

The Water Treatment Plant Pipeline North will include 14,000 linear ft of 16-inch-diameter PVC pipe and also begin at the water treatment plant and extend northward from Salem to Spanish Fork. Both the west and north pipeline alignments are shown in Figure 6-1 as projects 10 and 11.

Irrigation and Untreated Water Facilities

Spanish Fork–Santaquin Pipeline – The Spanish Fork-Santaquin Pipeline is a proposed federal facility that is being constructed by CUWCD as part of the ULS System and will deliver untreated water from Strawberry Reservoir to the MNWA study area. The Spanish Fork-Santaquin Pipeline will connect to the Spanish Fork Canyon Pipeline at U.S. Highway 89 about 0.8 mile northwest of the Highway 6/Highway 89 junction and mostly run adjacent to existing roads and adjacent to the Union Pacific Railroad right-of-way southwest to Santaquin. The steel pipeline will be 60-inch-diameter for 17.5 miles, with a capacity of 120 cfs (CUWCD, 2004) and (Hansen, 2017).

Cities within the MNWA study area will receive water from the Spanish Fork-Santaquin Pipeline through nine pipeline turnouts. The pipeline alignment and turnout locations are shown in Figure 6-2. Each city will be responsible to construct any facilities that are needed to make the connection from their secondary water distribution systems to the Spanish Fork-Santaquin Pipeline.

Goshen Valley Raw Water Pipeline – The Goshen Valley Raw Water Pipeline is proposed to convey untreated water to the GVLD. The pipeline would be designed to carry water from the Spanish Fork-Santaquin Pipeline and the High Line Canal as shown in Figure 6-3. The pipeline would begin at the Santaquin West Turnout of the Spanish Fork-Santaquin Pipeline and continue in a northwesterly direction for about a mile to the terminus of High Line Canal Lateral 31 adjacent to U.S. Highway 6 in Genola. From that location the pipeline would extend about 7.9 miles in a southwesterly/westerly direction to the GVLD near Elberta. The pipeline would have a capacity of 38 cfs. The pipeline would include 5,450 linear feet of welded steel pipe and 41,750 linear feet of high-density polyethylene (HDPE) pipe. A pressure reducing station would be provided at the junction with High Line Canal Lateral 31 so that water could be delivered from the Spanish Fork-Santaquin Pipeline and the High Line Canal simultaneously.

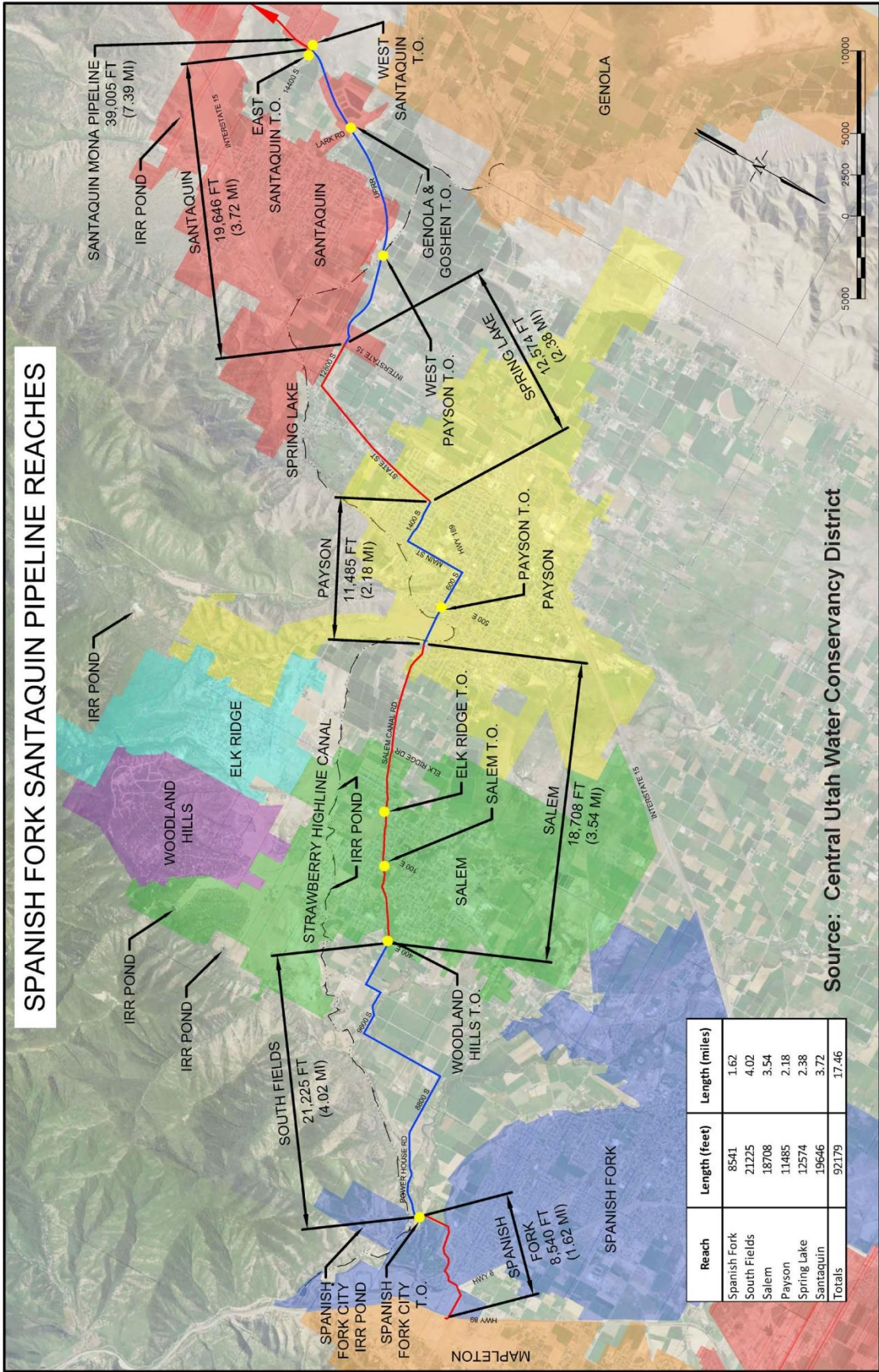
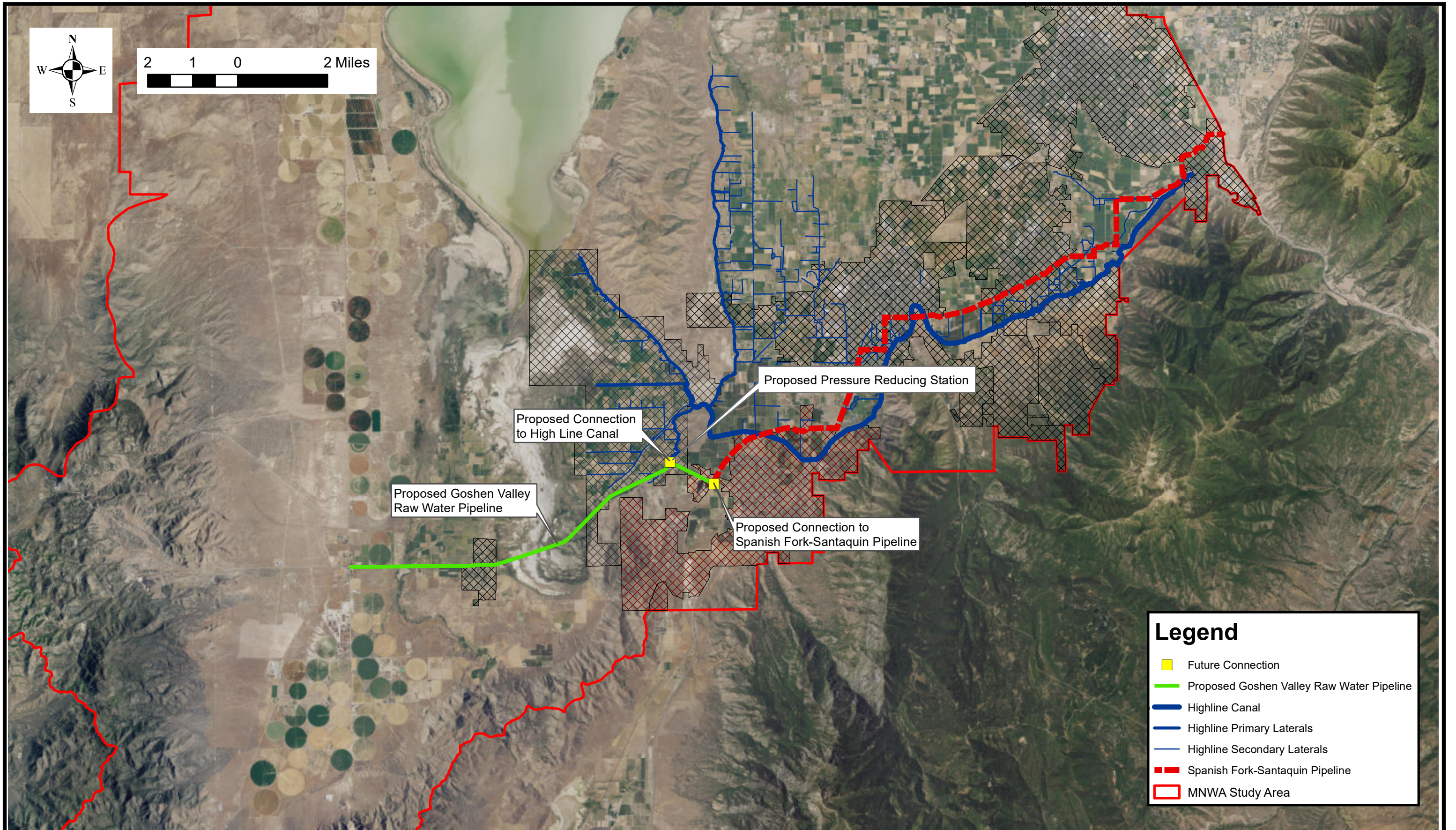


Figure 6-2: Spanish Fork-Santaquin Pipeline Reaches and Turnout Locations



Legend

- Future Connection
- Proposed Goshen Valley Raw Water Pipeline
- Highline Canal
- Highline Primary Laterals
- Highline Secondary Laterals
- Spanish Fork-Santaquin Pipeline
- MNWA Study Area

High Line Canal Piping Project – The Strawberry High Line Canal was constructed as a feature of the Strawberry Valley Project. While title to the canal right-of-way is held by the United States, the canal is operated and maintained by the SHLCC. According to River Commissioner reports, an average of 51,400 ac-ft of water per year was delivered through the High Line Canal from 2000-2016. This amount includes an interim supply of 5,900 ac-ft of CUP water.

The canal has a capacity of 300 cfs at the headworks near the Strawberry Water Users ' Power Plant near the mouth of Spanish Fork Canyon. Just over half of the main canal's 17.6 mile length is an unlined earthen channel. About 38 percent of the canal length is a concrete-lined trapezoidal channel with the remainder being concrete flume, tunnel, siphon, and synthetic membrane lined. According to SHLCC, about 32 percent of canal flow is lost to evapotranspiration, seepage, and operational spills. Because of the high losses and increasing conflicts with urbanization, SHLCC would like to enclose the canal in a buried pipeline along its entire length. SHLCC and potential funding partners are currently seeking funding for the \$120 million project.

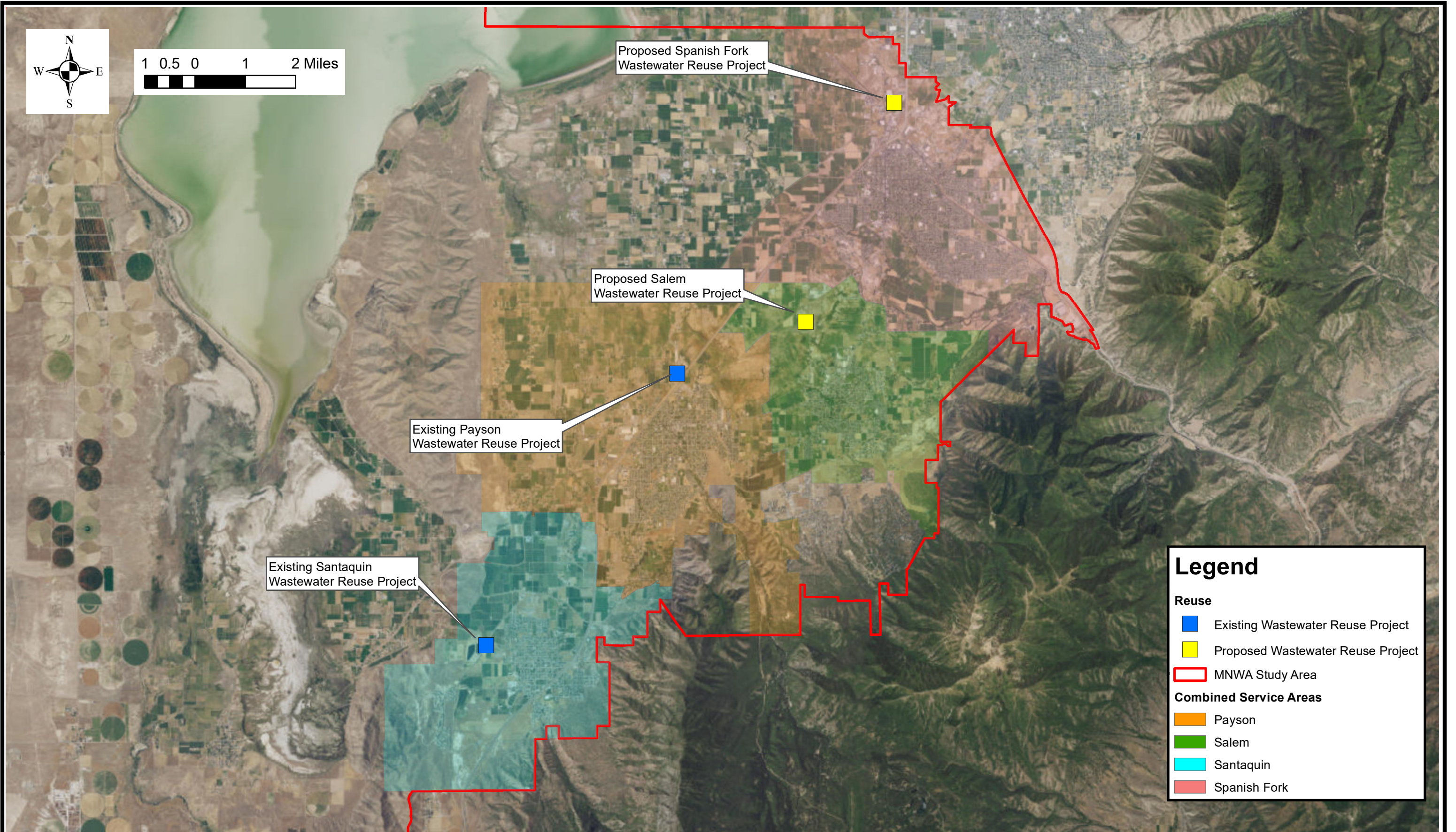
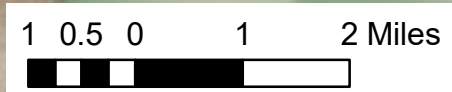
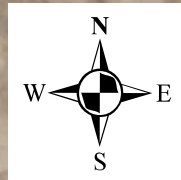
High Line Canal New Wells – SHLCC claims the right to 13,000 ac-ft of water rights based on return flow of Strawberry Valley Project water. SHLCC is working on plans to develop new wells within the MNWA study area and file water right change applications with the State Engineer that would move these return flow rights into the proposed wells. Specific locations for the wells have not yet been identified. Water from the wells would be made available to SHLCC shareholders, cities, and other entities within the MNWA study area. SHLCC also has water rights and pumps water from Spring Creek.

Secondary Water Meters – The water requirements calculated for this study are based on the assumption that water meters would be installed on all secondary water connections and that customers would be billed based on metered water usage. Studies have demonstrated that secondary water systems that have installed meters have seen as much as a 40 percent decrease in water use (DNR). Therefore, water meters are proposed to be installed on all municipal secondary water connections in Payson, Salem, and Santaquin. Spanish Fork City already has water meters on its secondary water connections.

Wastewater Reuse Facilities

Wastewater reuse represents a significant potential to provide additional water supply to the MNWA study area. Four wastewater treatment facilities currently exist within the study area. These plants include Payson, Salem, Santaquin, and Spanish Fork. The locations of these plants are shown in Figure 6-4.

Any treated wastewater used for residential irrigation must comply with all rules associated with Type I reuse. Type I reuse is defined as domestic wastewater effluent where human exposure is likely (Utah Administrative Code, R317-3.11.4). Additionally, the annual volume of treated wastewater effluent that can be reused is limited by the depletion allowed by the water rights for the drinking water sources that feed a particular system.



Legend

Reuse

- Existing Wastewater Reuse Project
- Proposed Wastewater Reuse Project

MNWA Study Area

- MNWA Study Area

Combined Service Areas

- Payson
- Salem
- Santaquin
- Spanish Fork

The Payson and Santaquin treatment plants already have capability to produce Type I reuse water and have approved water right applications for reuse. Payson has an approved reuse application that limits its annual use of treated sewage effluent to 71.8 percent of the amount of water diverted by the drinking water system or a maximum of 4,531.96 ac-ft, whichever is less. Santaquin has an approved reuse application that limits its annual use of treated sewage effluent to the amount of water diverted by the drinking water system up to a maximum of 6,099.0 ac-ft. However, the depletion associated with the use and reuse of water must not exceed 5,302.7 ac-ft per year.

Salem currently uses an aerated lagoon system for treating its wastewater. However, the City is currently working on a plan to construct a new wastewater treatment plant based on an oxidation ditch system. Construction of the plant is projected to be completed by 2020. The plant will also include tertiary treatment to provide Type I reuse water. The design capacity of the plant will be 1.5 MGD. Initially the plant is expected to produce about 0.5 MGD of treated effluent. This effluent would produce about 560 ac-ft per year initially and 1,680 ac-ft per year when fully capacity is reached. However, an evaluation of water rights will be required to ensure that the reuse does not cause the allowable depletion to be exceeded. This reuse water could be used in the City's secondary water system during the irrigation season and as a water source for ground water recharge during other months.

Spanish Fork's wastewater treatment plant is a hybrid activated sludge/trickling filter system. The plant has capacity to treat a peak flow of 6 MGD and currently produces about 4 MGD of treated effluent. In order to produce effluent suitable for Type I reuse tertiary filtration will be required. The plant already has a chlorine disinfection system. Proposed improvements that would allow Type I reuse include a filtration building with two Aqua-Aerobics AquaDisk filters, a 10 ac-ft concrete-lined storage pond, a 375 horsepower pump station, SCADA and electrical equipment, and about 1,240 linear feet of 12-inch-diameter PVC pipe to make connection with the City's secondary water system. Based on a maximum flow rate of 6 MGD the plant could produce 6,720 ac-ft of water for Type I reuse annually. However, an evaluation of water rights will be required to ensure that the reuse does not cause the allowable depletion to be exceeded. This reuse water could be used in the City's secondary water system during the irrigation season and as a water source for ground water recharge during other months.

Aquifer Recharge and Recovery

In order to reduce impacts from increased groundwater pumping in the future and to augment the available groundwater for well pumping, MNWA could pursue an Aquifer Storage and Recovery (ASR) program. ASR consists of the artificial recharge of the aquifer system through either surface spreading infiltration basins or direct injection wells and the subsequent discharge of water from the aquifer through increased pumping from existing wells or additional pumping from new wells. Surface spreading basins are the preferred method of recharge if surface water is used for artificial recharge. Otherwise, the water would have to be treated to drinking water standards before direct injection through a well. Typically recovery wells are located downgradient from the point of artificial recharge.

If an ASR program were implemented, the available groundwater for well pumping would increase by the volume of water recharged to the aquifer system. Caldwell Richards Sorensen (CRS) completed a Groundwater Recharge Feasibility Study that explored the feasibility of developing an ASR program in Southern Utah Valley (CRS, 2013). The overall conclusions of the study were that an ASR program could be developed over a 40-year timeframe with increasing aquifer

recharge beginning at 5,000 ac-ft per year, and increasing to 30,000 ac-ft per year within the MNWA study area.

Surface water diverted from canals and streams during the lower water use portions of the irrigation season (shoulder season flows) in April, May, September, and October were identified as sources for the ASR program. Surface spreading basins were proposed to be located in the primary recharge areas near the mountain front at the approximate locations shown on Figure 6-5. Specific recovery well locations were not identified, but CRS did show influence areas for each recharge area where recovery wells should be located (CRS, 2013).

If an ASR program were to be pursued by MNWA, each individual recharge site will need to be studied in more detail in order to confirm the feasibility of the site and obtain the proper permitting. Some of the considerations of further study include individual site soil characteristics, stratigraphic layering of the deposits below the site, water quality of the recharge source compared to the groundwater below the site, specific locations for recovery wells, water right considerations, land ownership issues, effect on adjacent land owners, effect on adjacent water right holders, and effect on groundwater levels relative to land surface.

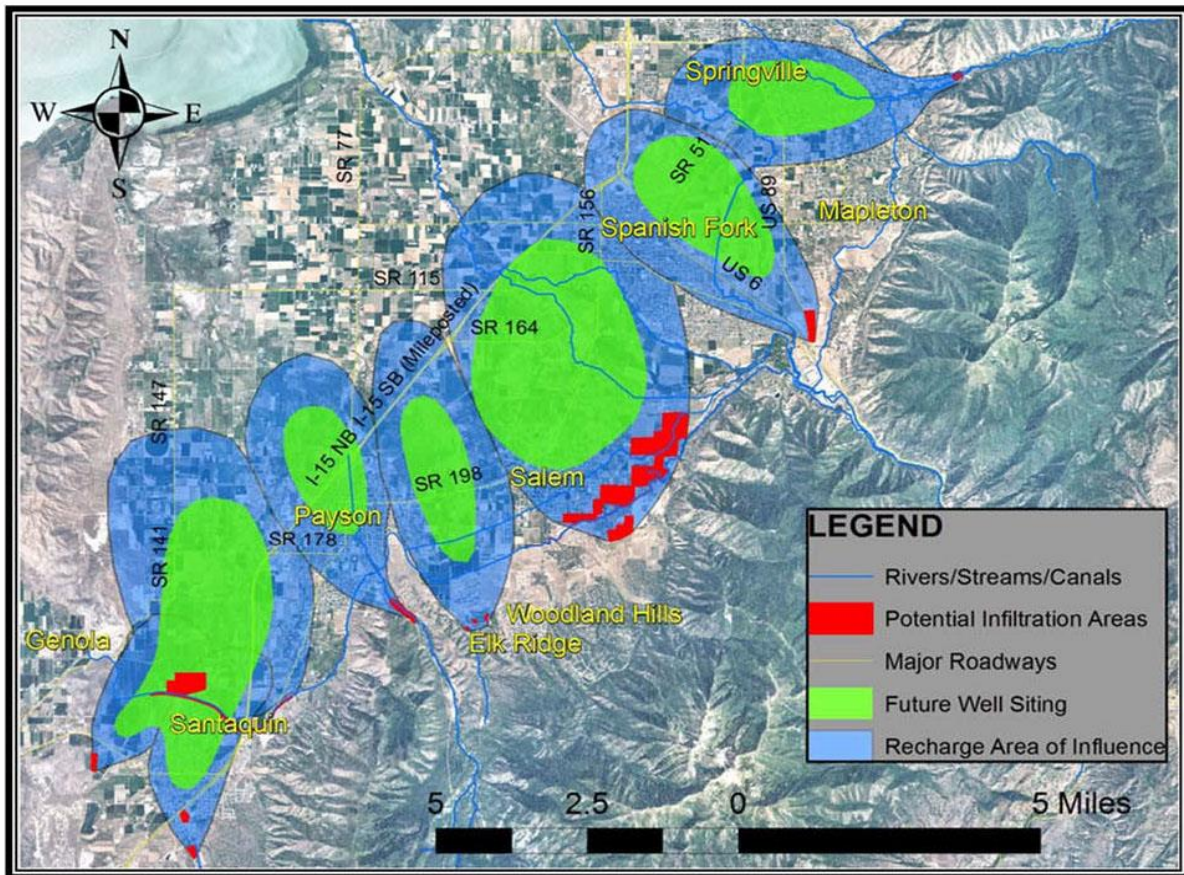


Figure 6-5: Potential Groundwater Recharge Areas (Source: Caldwell, Richards, Sorensen, *Southern Utah Valley Municipal Water Association Groundwater Recharge Feasibility Study*, 2013.)

An ASR program has already been implemented in the Santaquin area. The Summit Creek Water Management Project is a joint project of the Summit Creek Irrigation and Canal Company,

Santaquin City, Utah County, and the SHLCC. The overall purpose of this project is to improve the management of water from Summit Creek. (Franson Civil Engineers, 2013)

Main components of the project include: recharge and recovery of groundwater, improved control of flood flows (high water management), water conservation features, reuse, and flow measurement. Two recharge applications, No. RC009 and No. RC010 have been filed with the State Engineer for the project. Recharge Application No. RC009 in the amount of up to 1,500 ac-ft annually has been approved. Application No. RC010 for up to 4,000 ac-ft annually has not been approved as of this writing.

CONCEPTUAL-LEVEL COST ESTIMATES

Conceptual-level cost estimates have been prepared for construction of the facilities described previously in this chapter. As mentioned previously, these estimates are based on concepts only and should not be used for budgetary purposes. More detailed designs should be developed to determine the technical and financial feasibility of concepts described in this study.

Table 6-1 summarizes conceptual-level cost estimates for the proposed facilities previously described in this chapter.

**Table 6-2
Conceptual-Level Cost Estimates**

Project	Estimated Cost	Notes
Drinking Water Facilities		
Project 1 – Spanish Fork/Salem Low Pressure Zone Connection	\$560,000	Breakdown of cost estimate provided in Appendix L.
Project 2 – Salem/Payson North Connection	\$230,000	Breakdown of cost estimate provided in Appendix L.
Project 3 – Salem/Payson Connection	\$1,060,000	Breakdown of cost estimate provided in Appendix L.
Project 4 – Salem/Elk Ridge Connection	\$230,000	Breakdown of cost estimate provided in Appendix L.
Project 5 – Woodland Hills/Elk ridge Connection	\$294,000	Breakdown of cost estimate provided in Appendix L.
Project 6 – Payson/Genola Connection	\$3,520,000	Breakdown of cost estimate provided in Appendix L.
Project 7 – Genola/Goshen Connection	\$4,160,000	Breakdown of cost estimate provided in Appendix L.
Project 8 – Spanish Fork/Salem Intermediate Pressure Zone Connection	\$280,000	Breakdown of cost estimate provided in Appendix L.
Project 9 – Payson/Santaquin Connection	\$270,000	Breakdown of cost estimate provided in Appendix L.
Payson Drinking Water Well	\$520,000	Cost based on new 18" well.
Santaquin Drinking Water Well	\$290,000	Cost based on new 10" well.
Woodland Hills Drinking Water Well	\$230,000	Cost based on new 8" well.
CUWCD Water Treatment Plant	\$100,000,000	Cost provided by CUWCD.
Project 10 – Water Treatment Plant Pipe West	\$45,640,000	Breakdown of cost estimate provided in Appendix L.
Project 11 – Water Treatment Plant North	\$5,240,000	Breakdown of cost estimate provided in Appendix L.

Project	Estimated Cost	Notes
Irrigation and Untreated Water Facilities		
Spanish Fork–Santaquin Pipeline	\$140,000,000	Cost provided by CUWCD.
Goshen Valley Raw Water Pipeline	\$36,600,000	Breakdown of cost estimate provided in Appendix L.
High Line Canal Piping Project	\$120,000,000	Cost provided by Strawberry High Line Canal Company.
High Line Canal New Wells	\$3,000,000	Cost based on 6 wells at \$500,000 per well.
Payson Secondary Water Meters	\$5,519,000	Cost based on 5,519 connections at \$1,000 per connection.
Salem Secondary Water Meters	\$2,257,000	Cost based on 2,257 connections at \$1,000 per connection.
Wastewater Reuse Facilities		
Salem New Wastewater Treatment Plant	\$14,000,000	Cost provided by Salem City.
Spanish Fork Wastewater Treatment Plant Upgrades	\$8,700,000	Breakdown of cost estimate provided in Appendix L.
Aquifer Recharge and Recovery Facilities		
Recharge Basins and Monitoring Wells	\$3,790,000	Based on CRS Groundwater Recharge Feasibility Study costs of \$1,190,000 for recharge basins and \$2,400,000 for monitoring wells indexed from 2013 to 2017 using RSMeans indexes.
TOTAL	\$493,770,000	

IMPLEMENTATION SCHEDULE

The schedule for implementing conceptual plans discussed on in this chapter should generally be based on the timing of the needs that each plan addresses. Many of the needs currently exist which means that plans should be implemented as soon as it is reasonably practical. Other needs occur in conjunction with population growth and are based on population projections. Table 6-2 provides a summarized implementation schedule for conceptual plans.

Table 6-3
Implementation Schedule for Conceptual Plans

Project	Implementation Schedule
Non-Structural Measures	
Water Conservation	Should be an on-going practice. However, next updates of water conservation plans should develop strategies to reduce water consumption to State-recommended levels by 2025.
Water Rights Acquisition and Management	Should be an on-going practice.
Expanded Role of MNWA	Discussions between MNWA and cities should begin as soon as possible.
Drinking Water Facilities	
Project 1 – Spanish Fork/Salem Low Pressure Zone Connection	As soon as practical.
Project 2 – Salem/Payson North Connection	As soon as practical.

Project	Implementation Schedule
Project 3 – Salem/Payson Connection	As soon as practical.
Project 4 – Salem/Elk Ridge Connection	As soon as practical.
Project 5 – Woodland Hills/Elk ridge Connection	As soon as practical.
Project 6 – Payson/Genola Connection	As soon as practical.
Project 7 – Genola/Goshen Connection	As soon as practical. Due to cost and limited population this project could be a low priority.
Project 8 – Spanish Fork/Salem Intermediate Pressure Zone Connection	When future development brings water systems in proximity to each other.
Project 9 – Payson/Santaquin Connection	When future development brings water systems in proximity to each other.
Payson Drinking Water Well Capacity	As soon as practical based on growth and need for redundancy.
Santaquin Drinking Water Well Capacity	As soon as practical based on growth and need for redundancy.
Woodland Hills Drinking Water Well Capacity	As soon as practical based on growth and need for redundancy.
CUWCD Water Treatment Plant	After completion of Spanish Fork-Santaquin Pipeline.
Project 10 – Water Treatment Plant Pipe West	In conjunction with CUWCD Water Treatment Plant construction. Last 6.5 miles dependent on large industrial development at GVL.D.
Project 11 – Water Treatment Plant North	In conjunction with CUWCD Water Treatment Plant construction.
Irrigation and Untreated Water Facilities	
Spanish Fork–Santaquin Pipeline	Project is under construction. Projected completion is scheduled for 2024 but is dependent on availability of federal funding.
Goshen Valley Raw Water Pipeline	Dependent on large industrial development at GVL.D, but not before completion of Spanish Fork-Santaquin Pipeline.
High Line Canal Piping Project	As soon as practical. SHLCC is currently working on a funding plan.
High Line Canal New Wells	As soon as practical.
Payson Secondary Water Meters	As soon as practical.
Salem Secondary Water Meters	As soon as practical.
Wastewater Reuse Facilities	
Salem New Wastewater Treatment Plant	Scheduled for 2020 completion.
Spanish Fork Wastewater Treatment Plant Upgrades	As soon as practical.
Aquifer Recharge and Recovery Facilities	
Recharge Basins and Monitoring Wells	Phased implementation based on population growth (CRS, 2013). Phase I when study area population reaches 107,000. Phase II when population reaches 176,000. Phase III when population reaches 205,000. Phase IV when population reaches 240,000.

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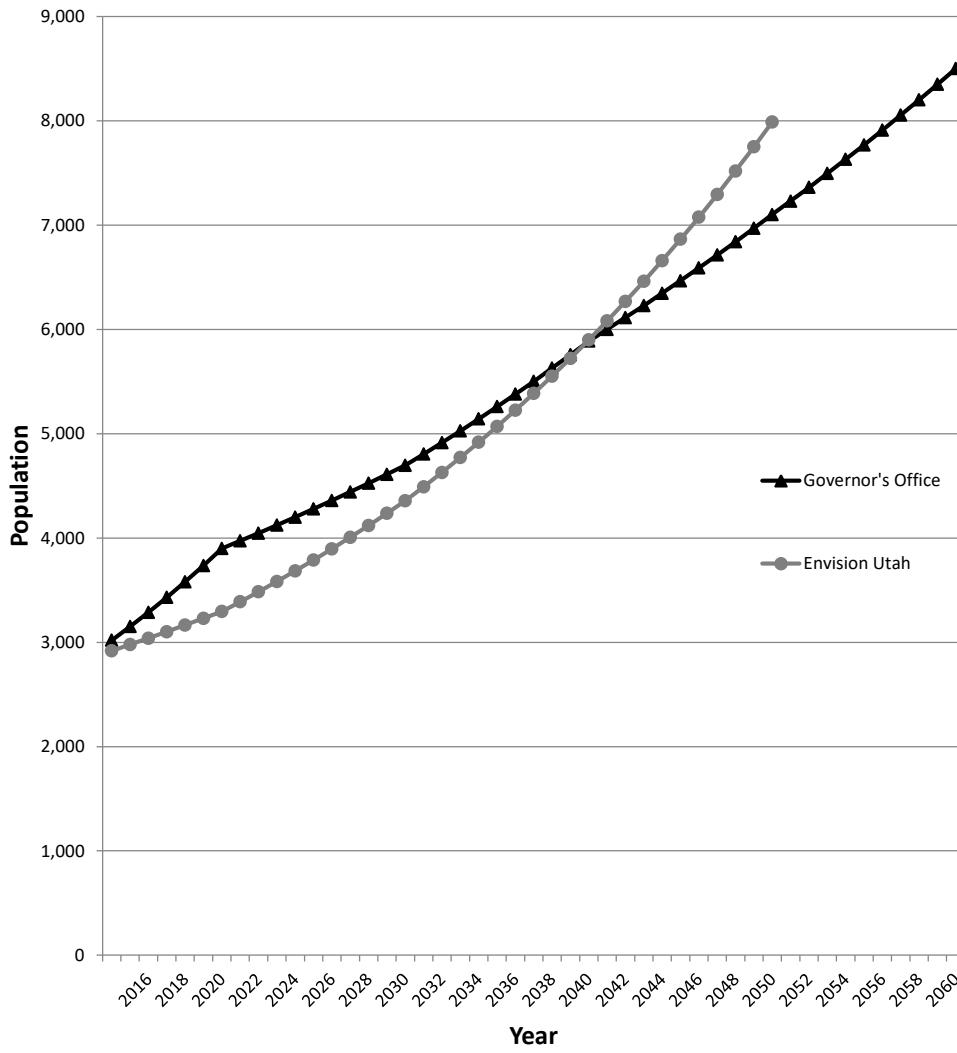
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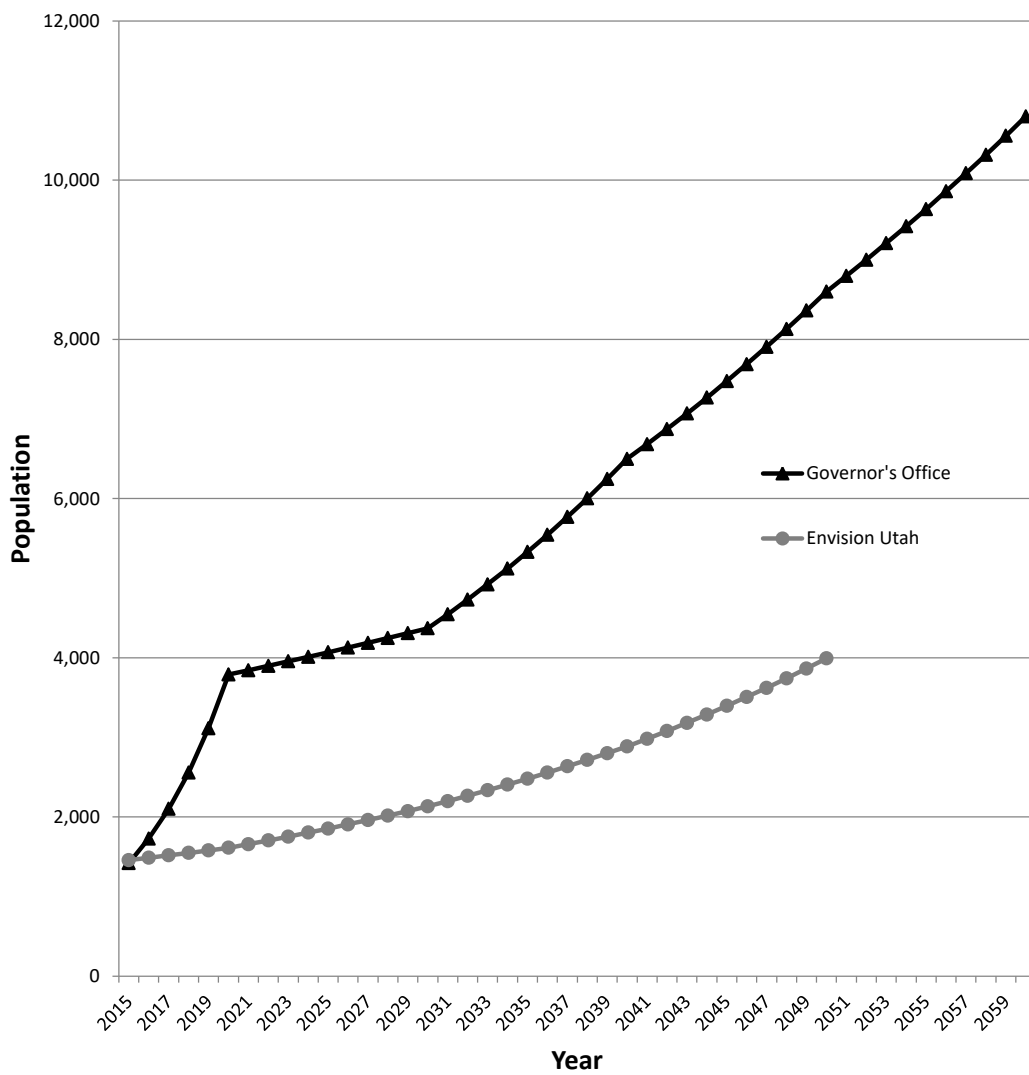
APPENDIX A

POPULATION PROJECTIONS

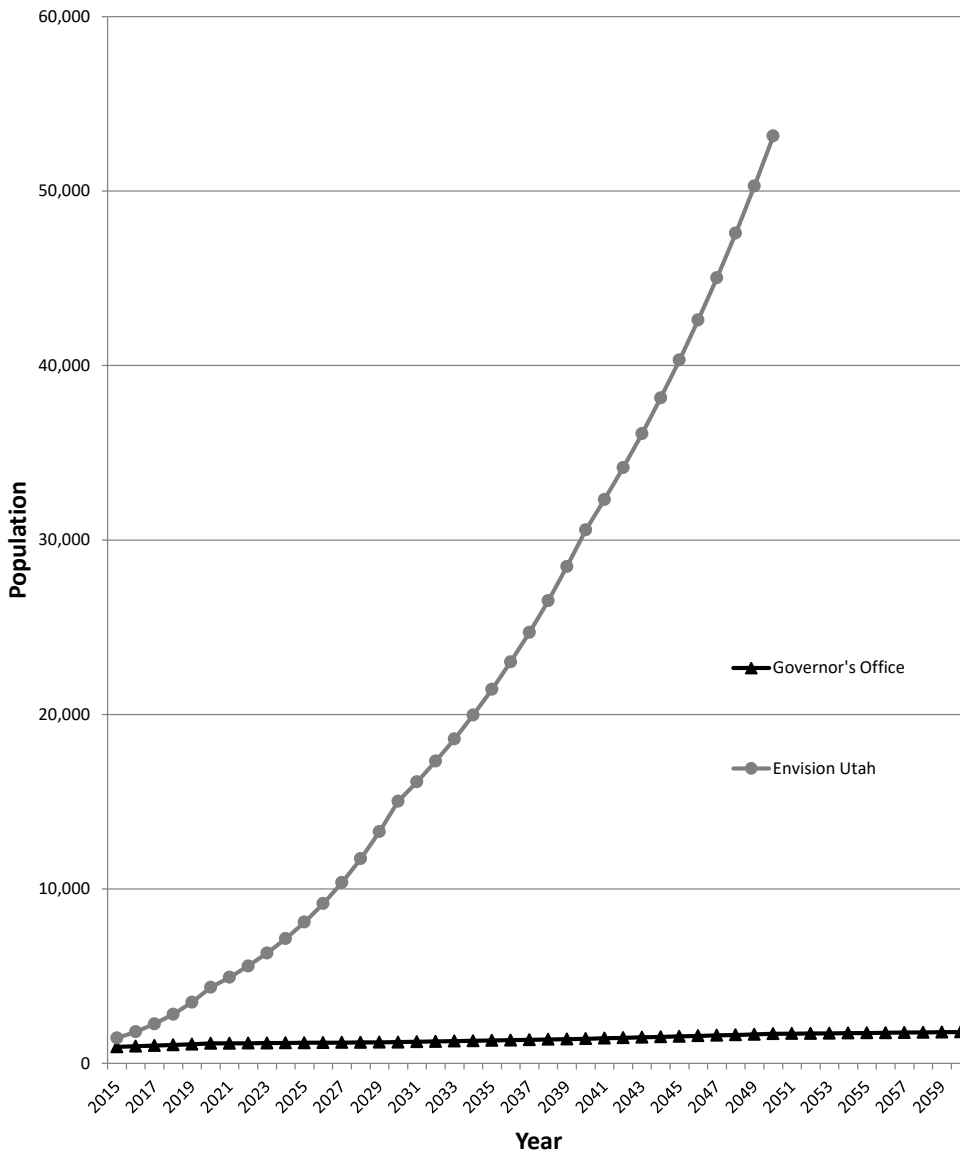
Elk Ridge Projected Population vs. Years



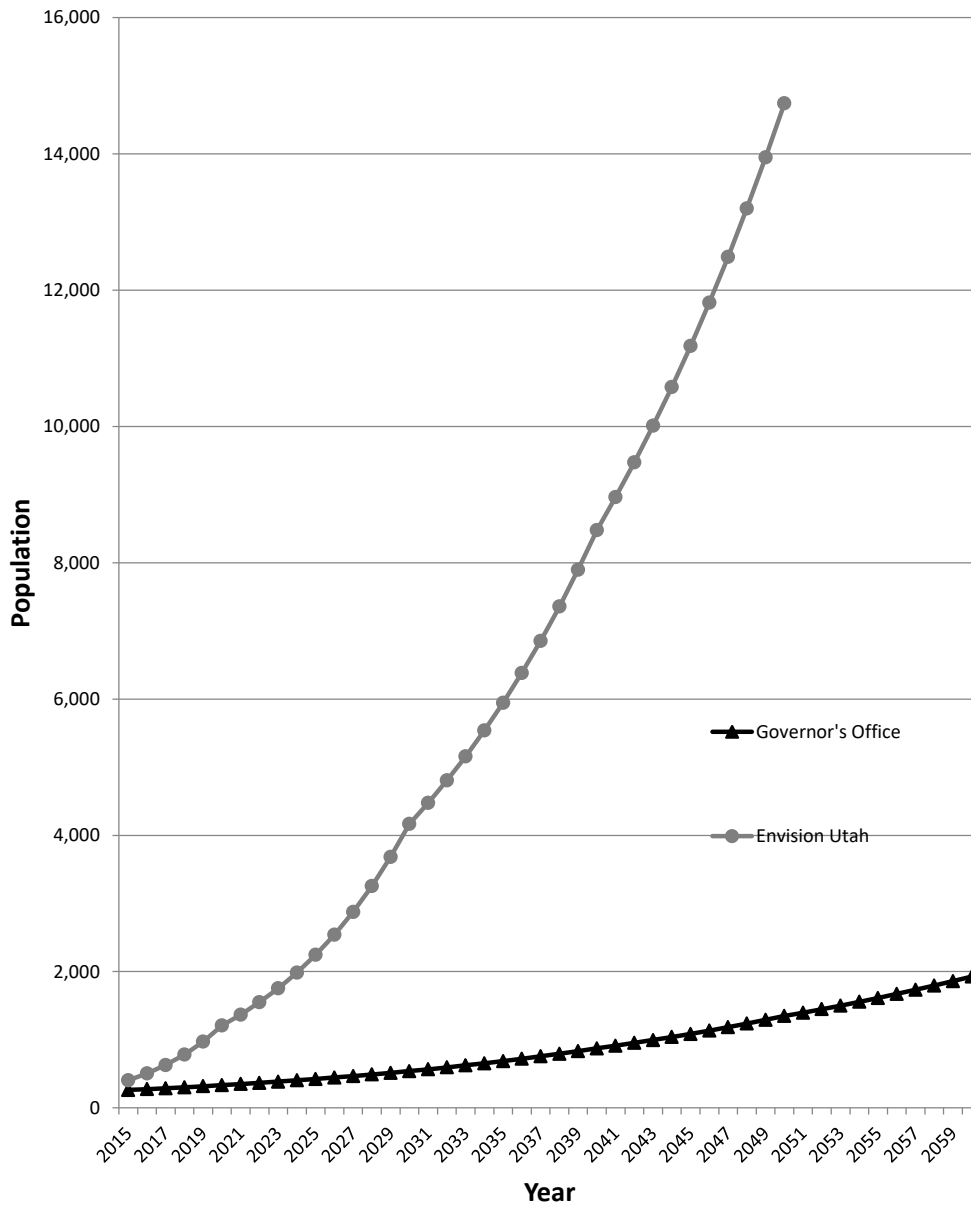
Genola Projected Population vs. Years



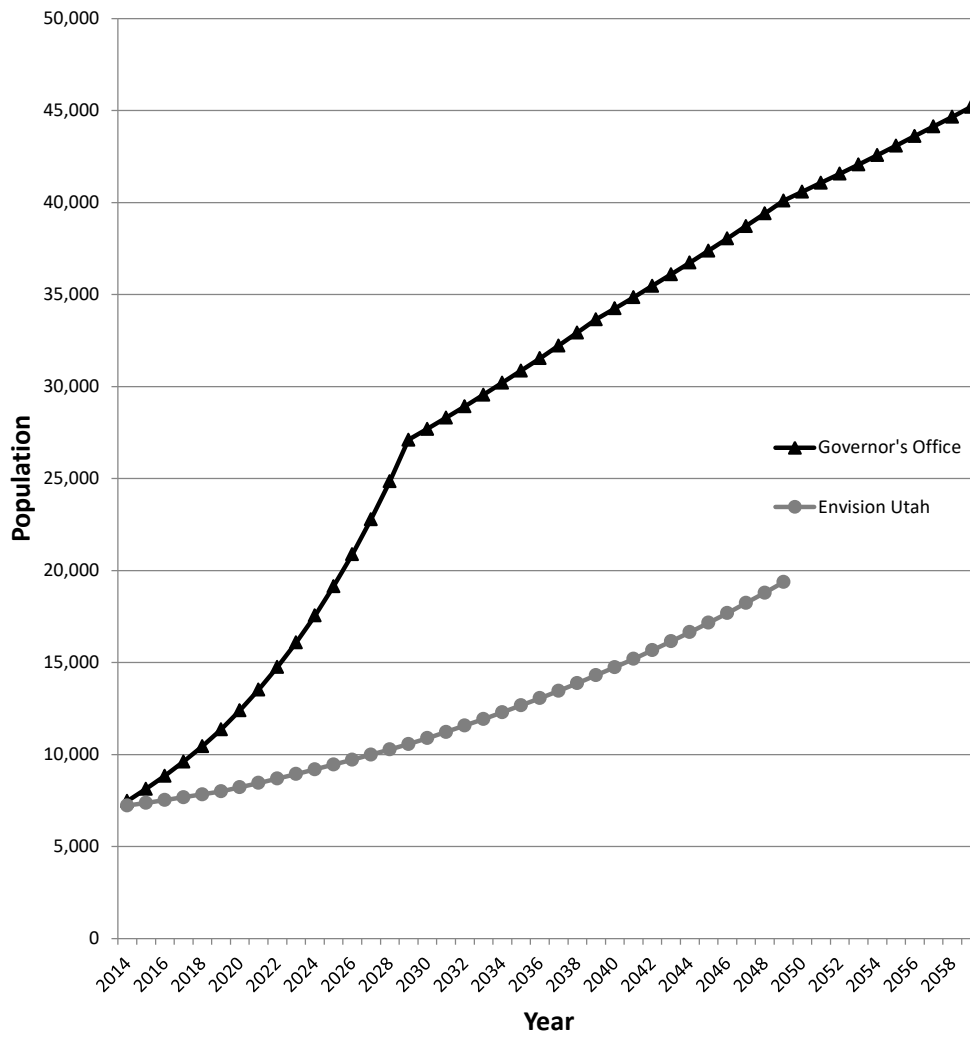
Goshen Town Projected Population vs. Years



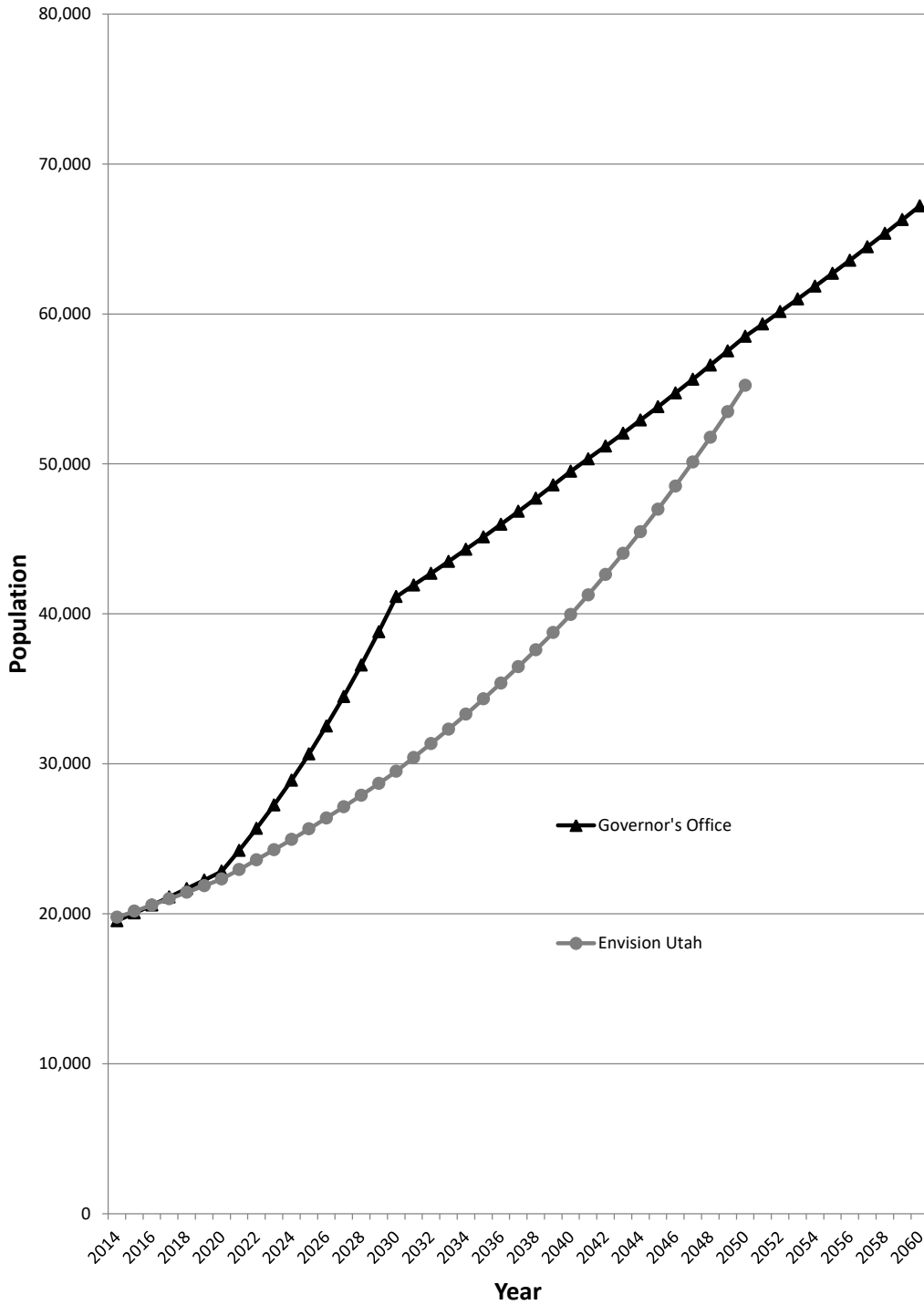
Goshen Valley Local District Projected Population vs. Years



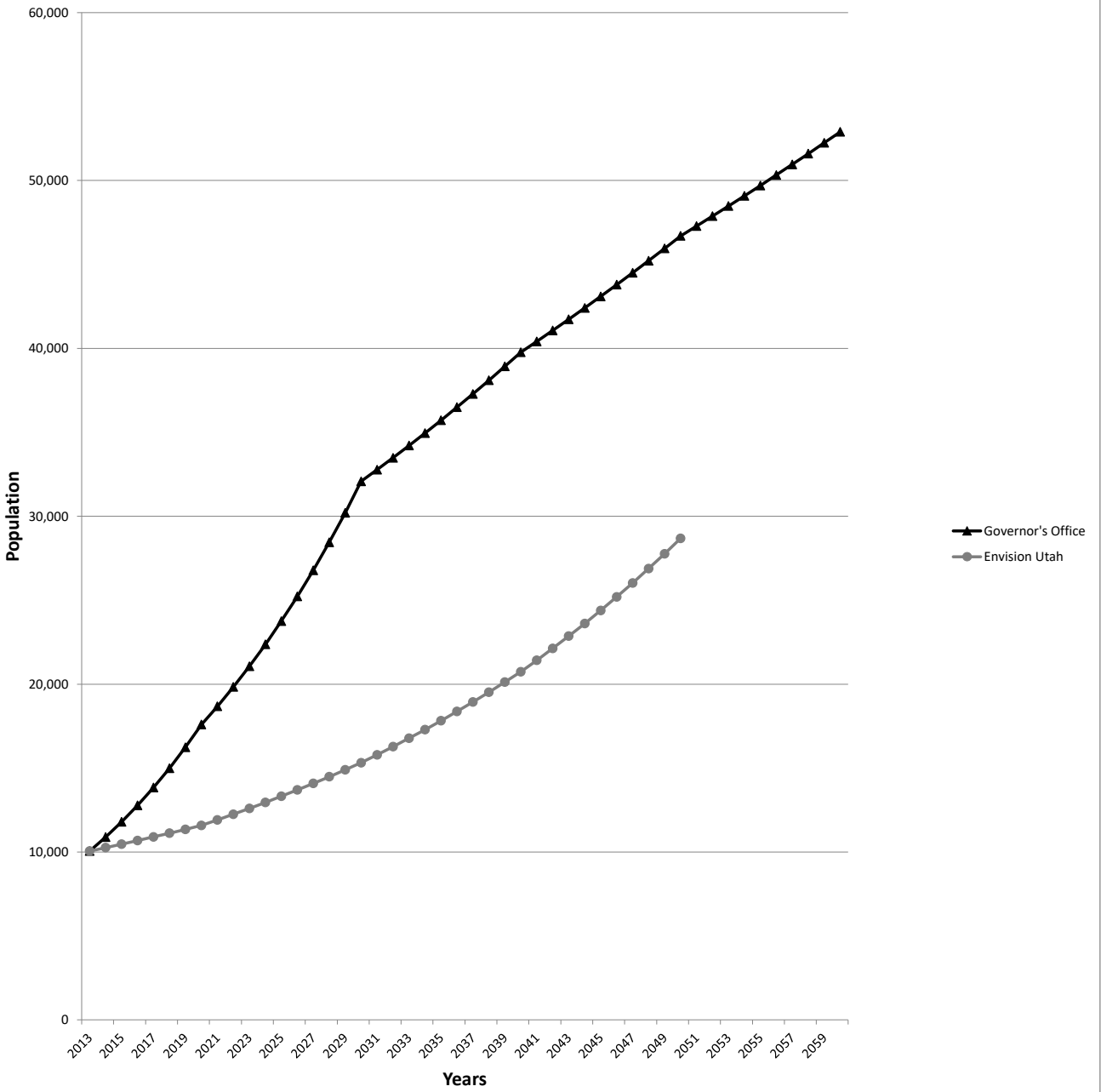
Salem Projected Population vs. Years



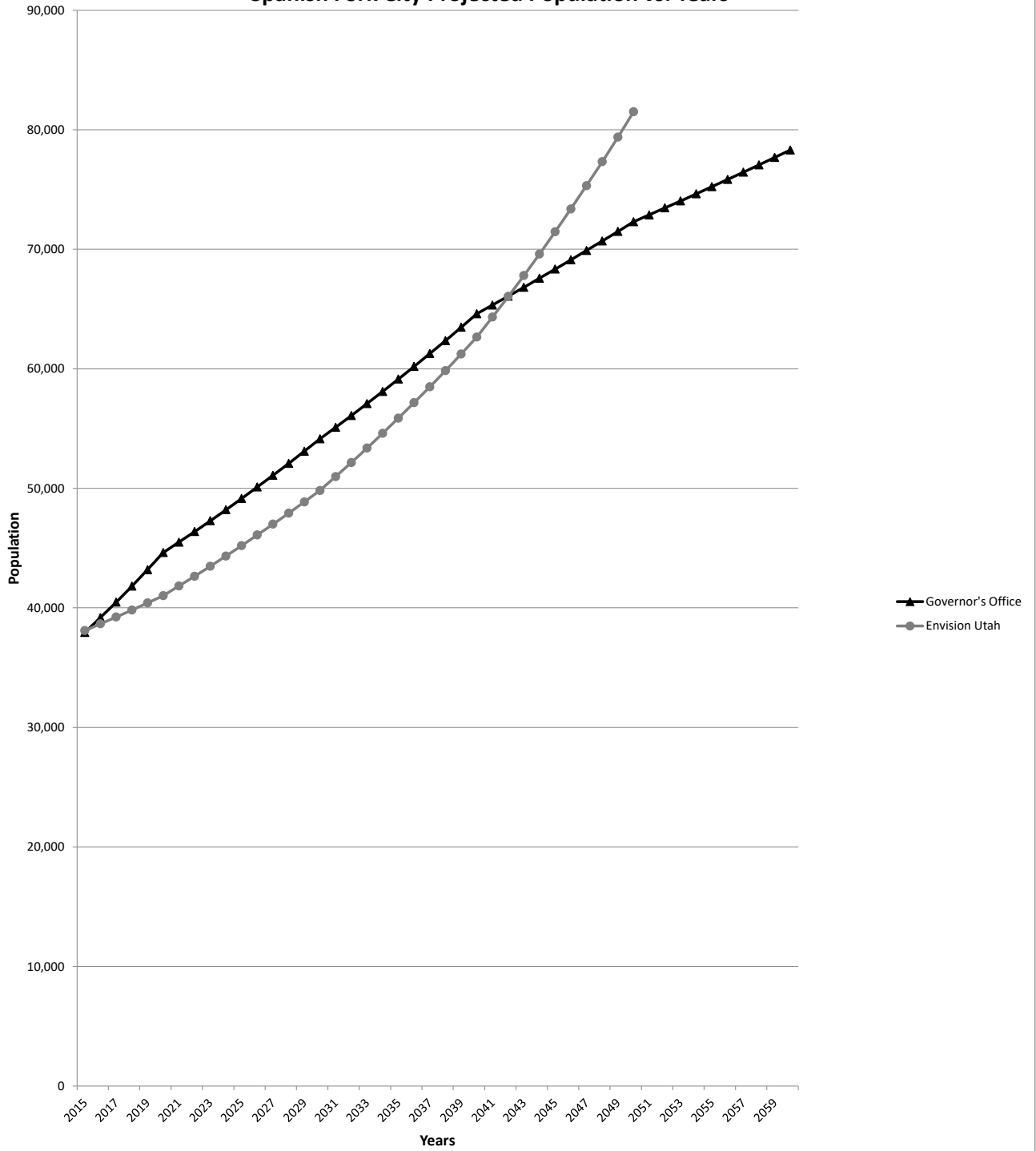
Payson Projected Population vs. Years



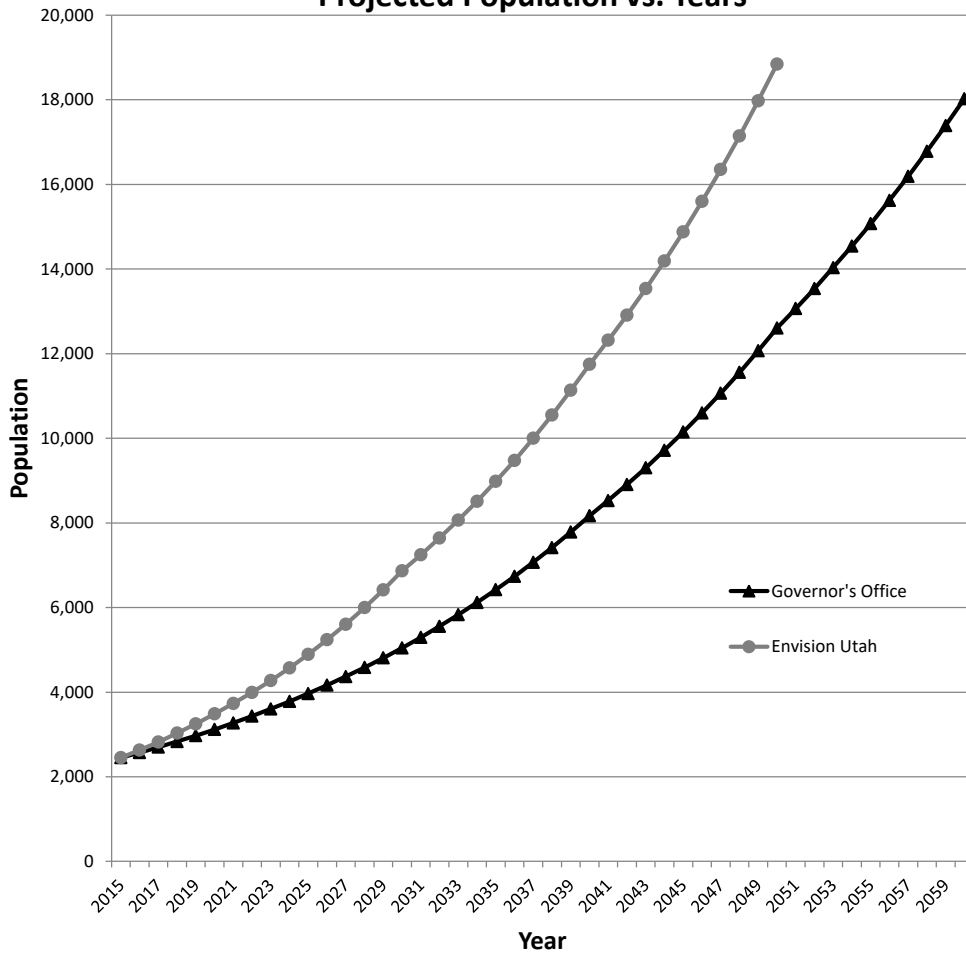
Santaquin Population Projection vs. Years



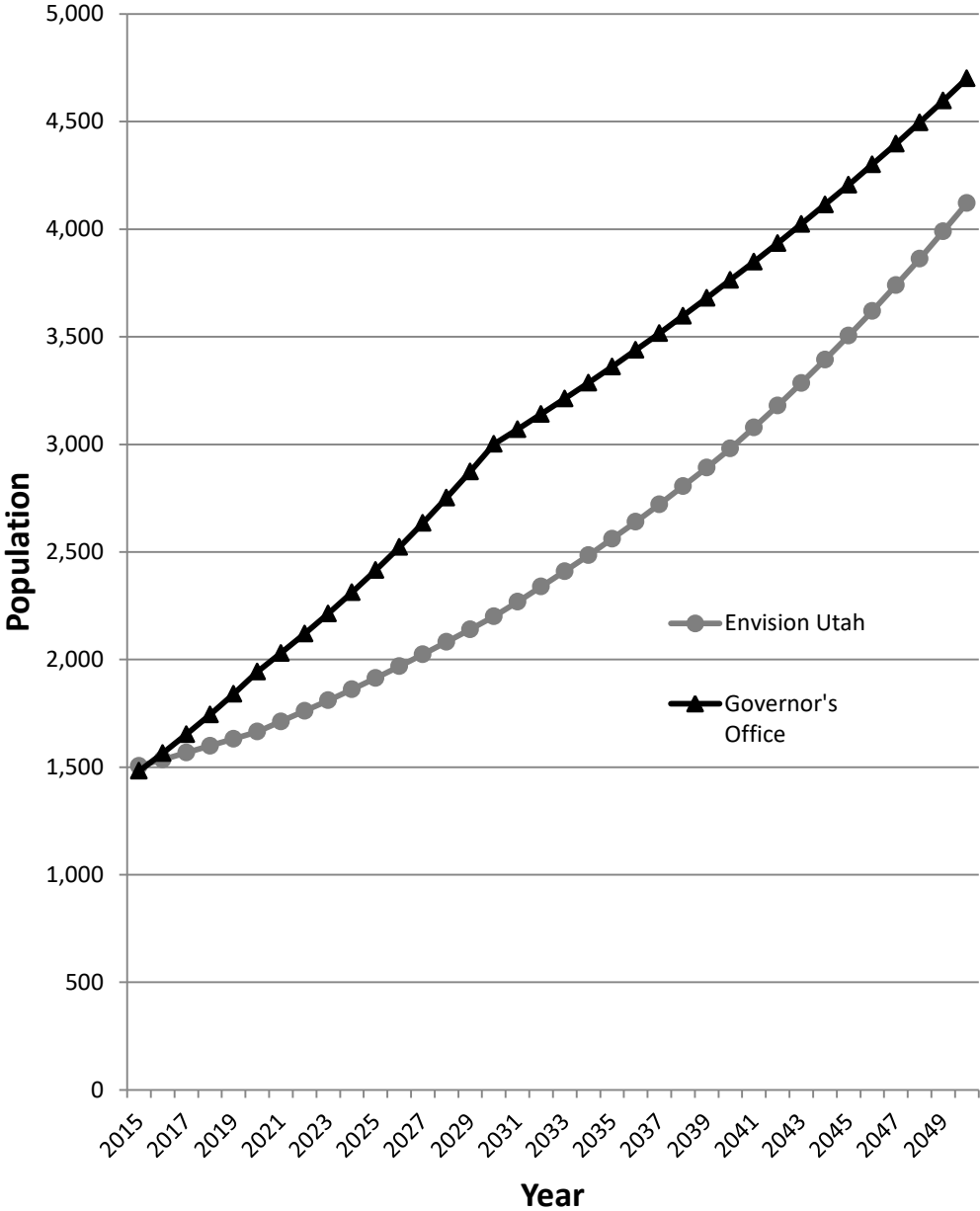
Spanish Fork City Projected Population vs. Years



Benjamin & Lakeshore Projected Population vs. Years

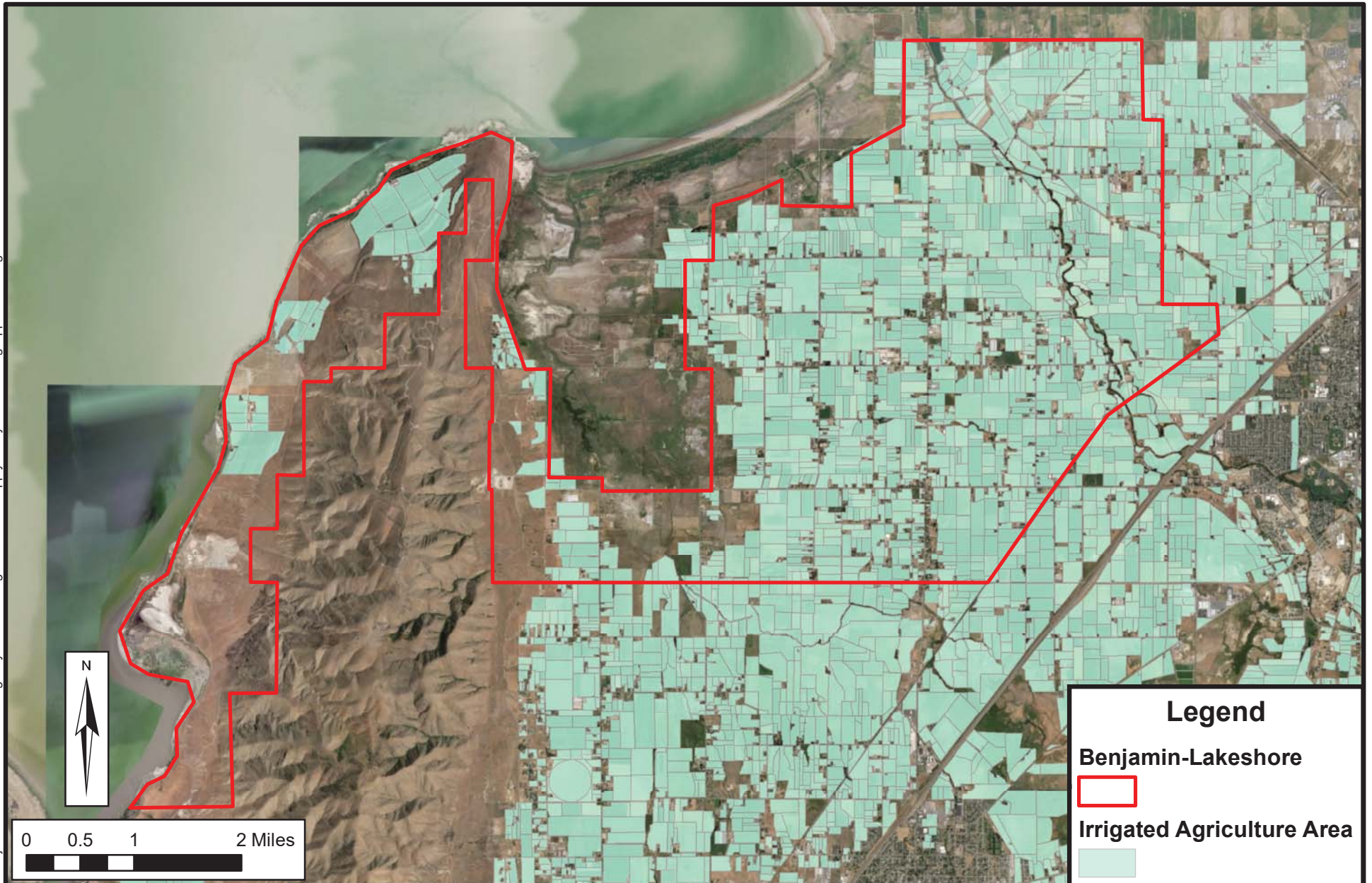


Woodland Hills Projected Population vs. Years



APPENDIX B

IRRIGATED AGRICULTURAL AREAS



Legend

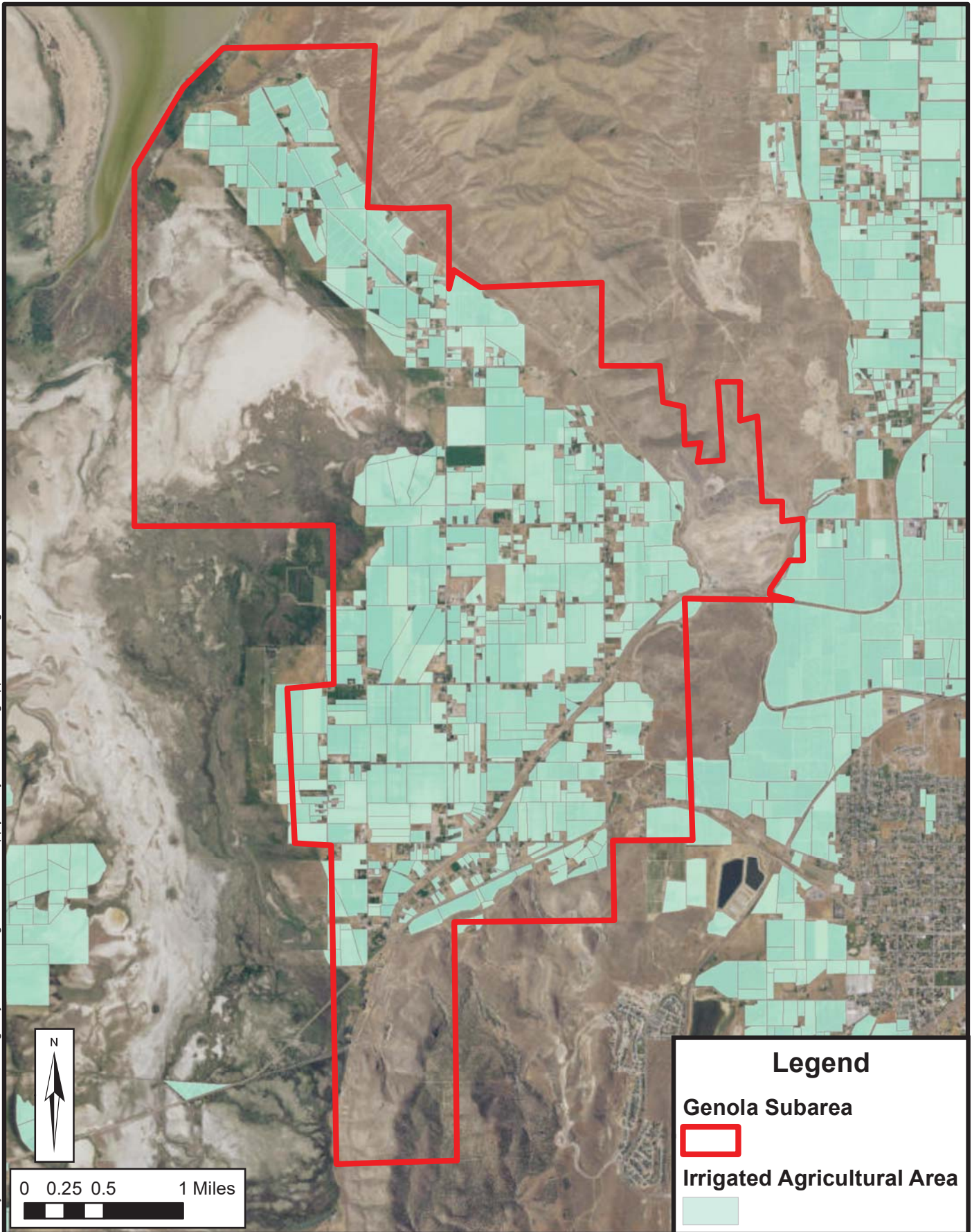
- Benjamin-Lakeshore
- Irrigated Agriculture Area



**MT NEBO WATER AGENCY
REGIONAL WATER SUPPLY STUDY**

**BENJAMIN-LAKESHORE
IRRIGATED AREAS**

**FIGURE
B-1**



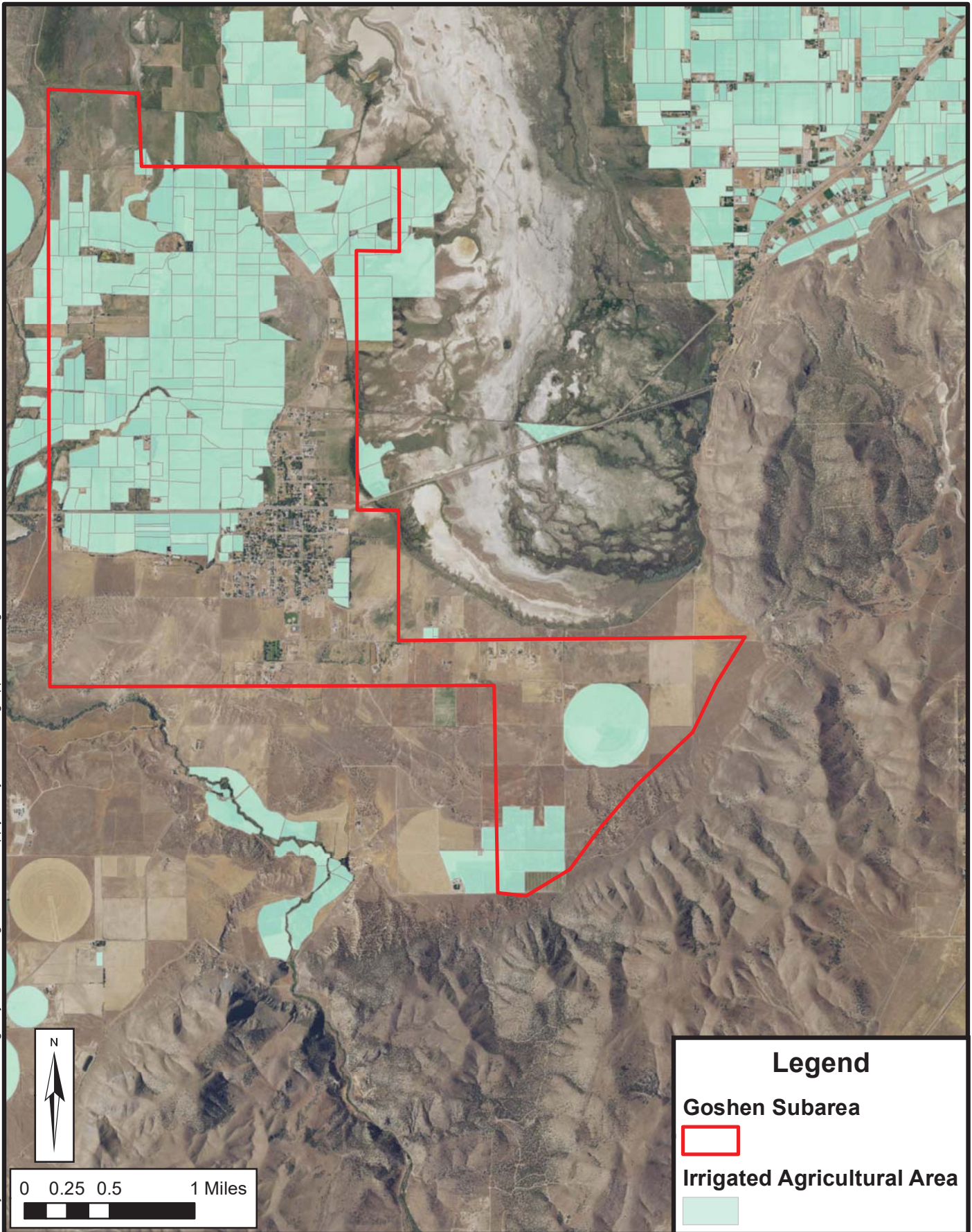
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
- Genola Subarea
- Irrigated Agricultural Area



GENOLA SUBAREA IRRIGATED AREAS

**FIGURE
B-2**

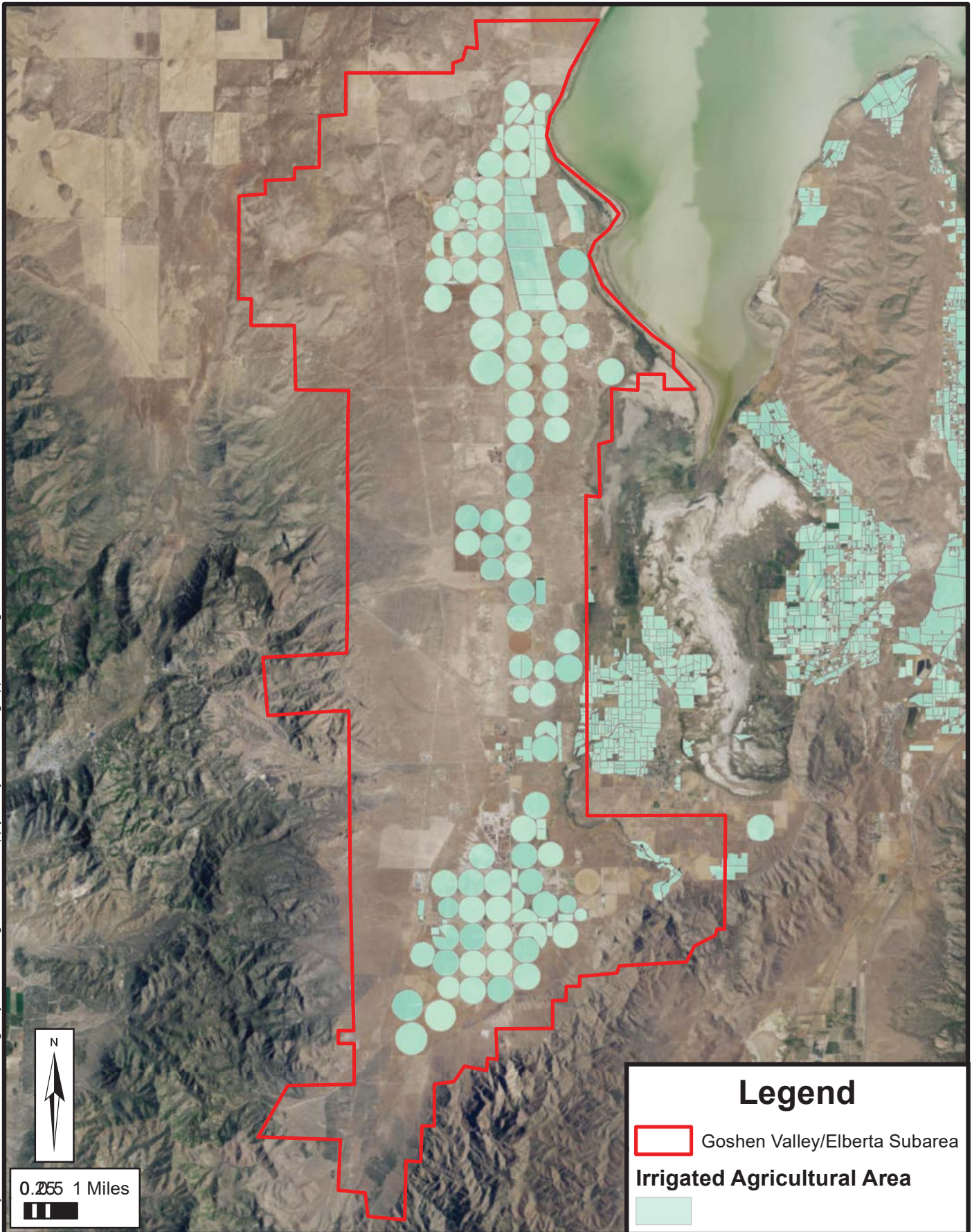


Legend	
Goshen Subarea	
Irrigated Agricultural Area	





GOSHEN SUBAREA IRRIGATED AREAS

**FIGURE
B-3**



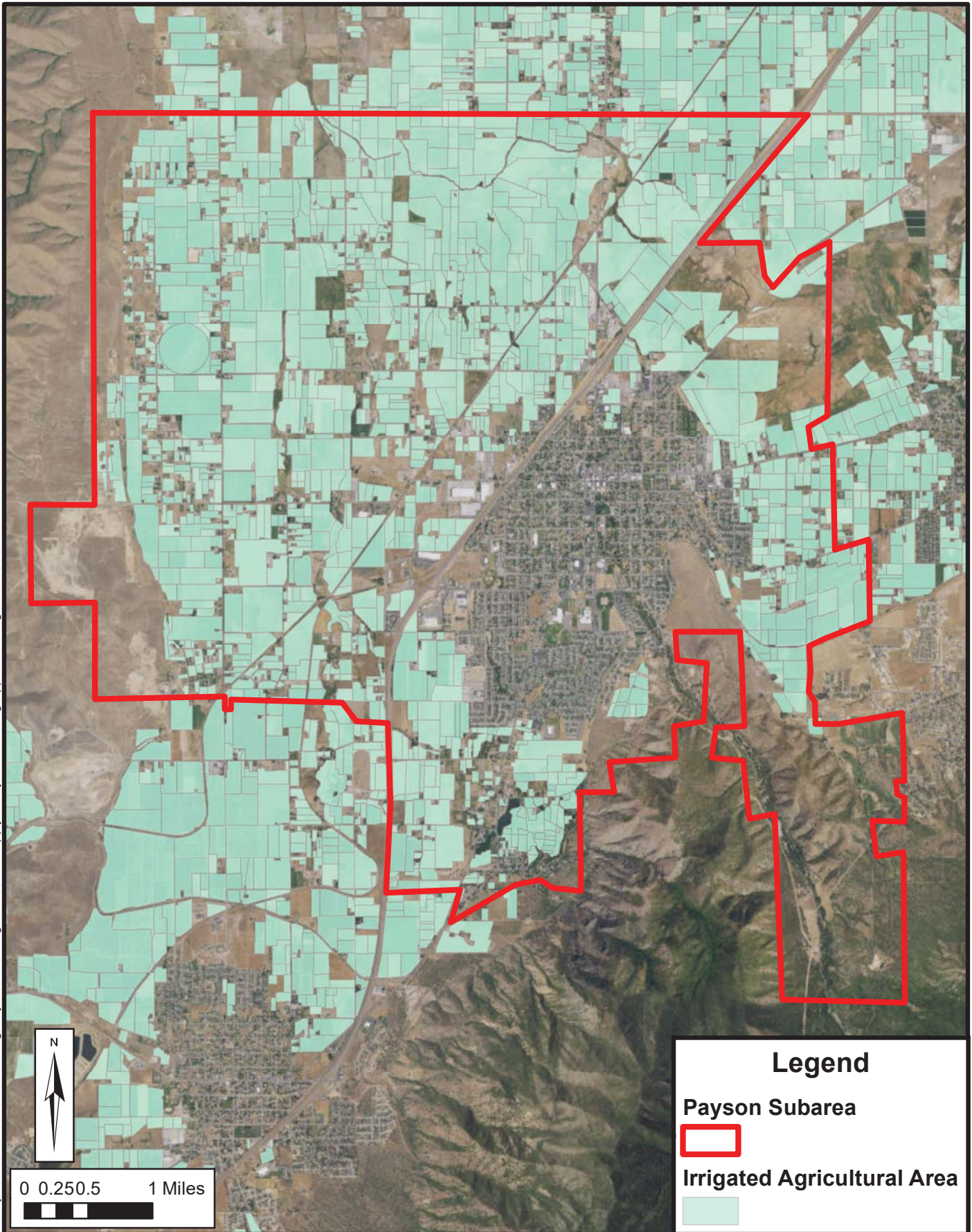
Legend

-  Goshen Valley/Elberta Subarea
-  Irrigated Agricultural Area



**GOSHEN VALLEY/ELBERTA SUBAREA
IRRIGATED AREAS**

**FIGURE
B-4**



Legend

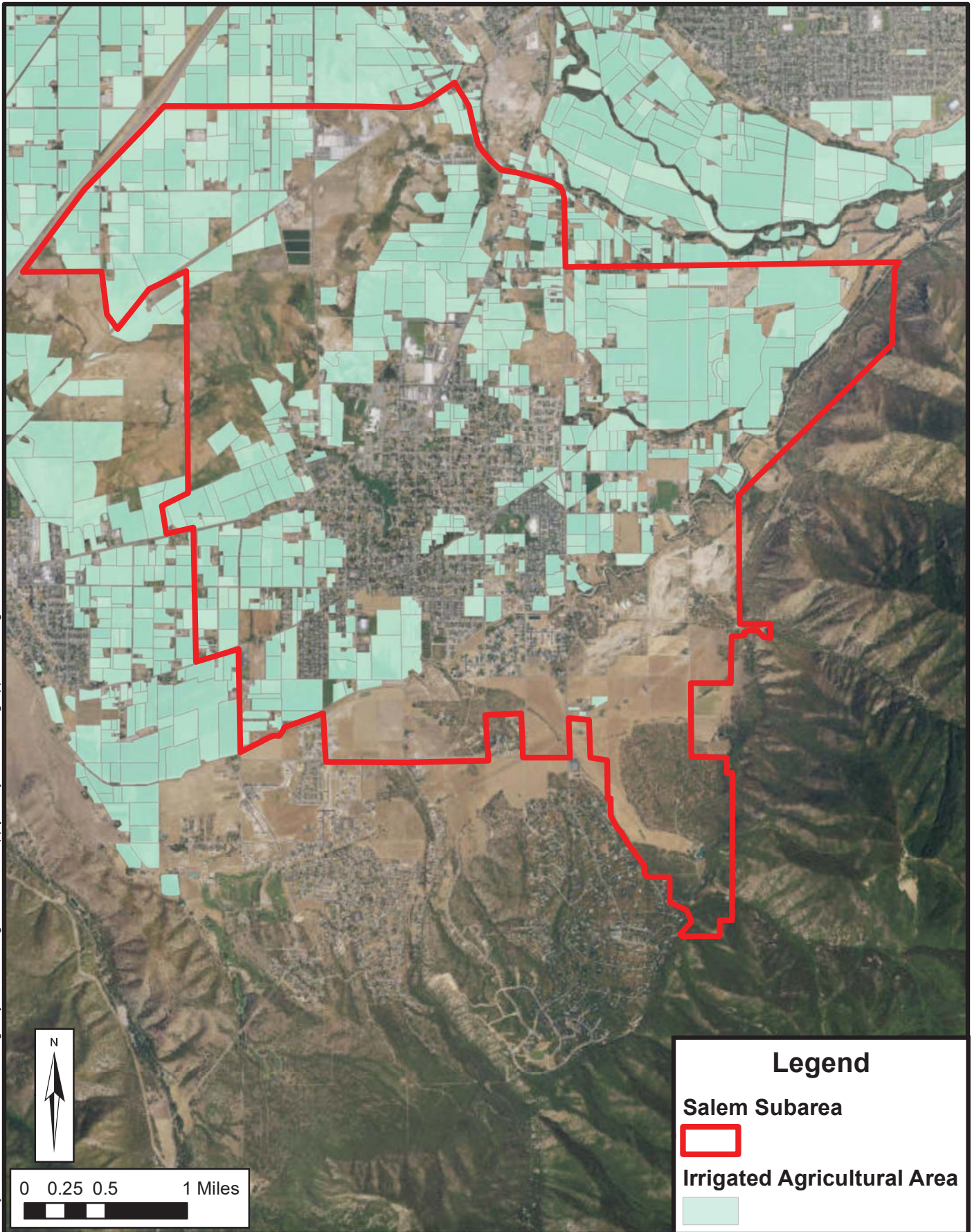
Payson Subarea

Irrigated Agricultural Area



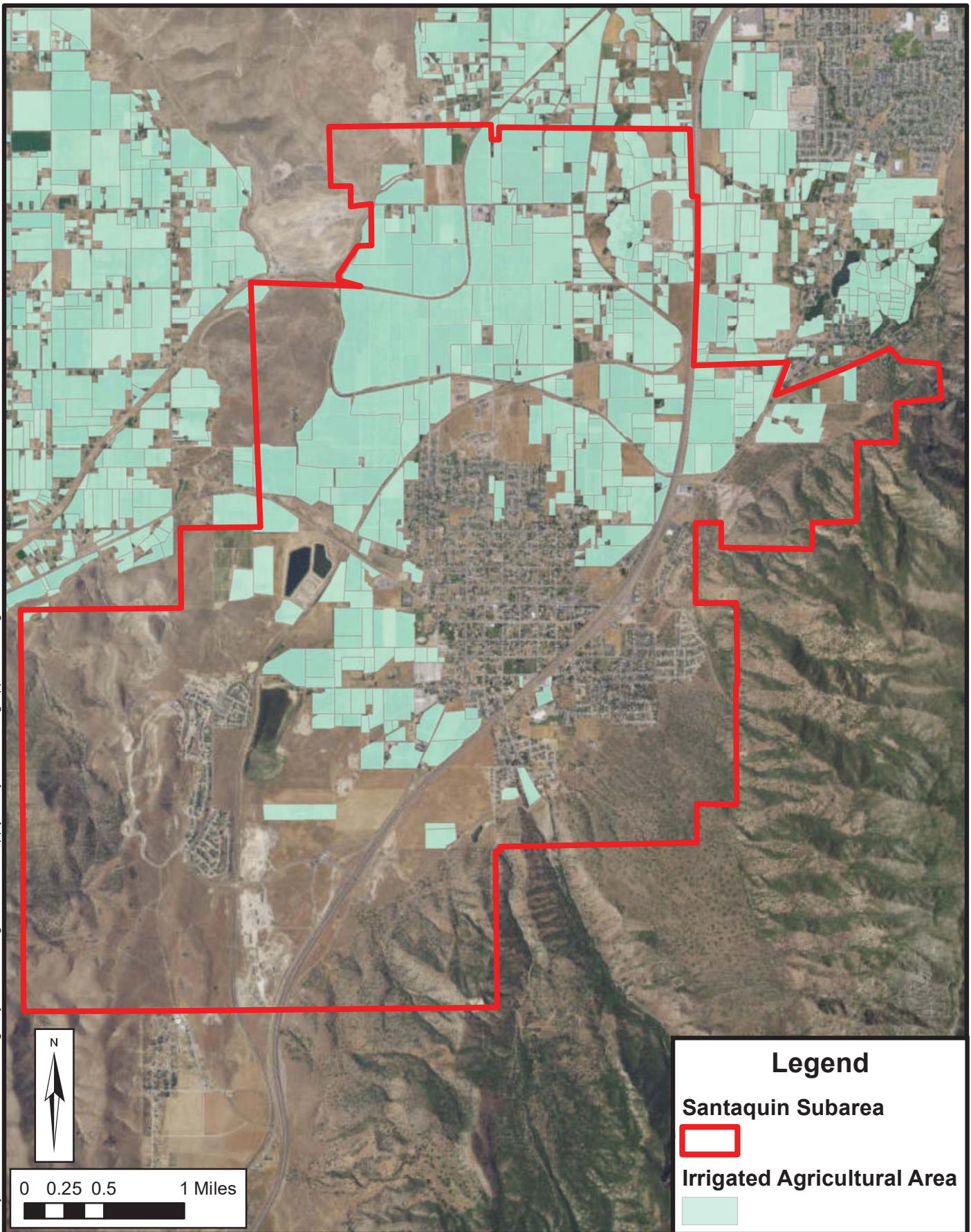
PAYSON SUBAREA IRRIGATED AREAS

**FIGURE
B-5**



SALEM SUBAREA IRRIGATED AREAS

**FIGURE
B-6**



Legend

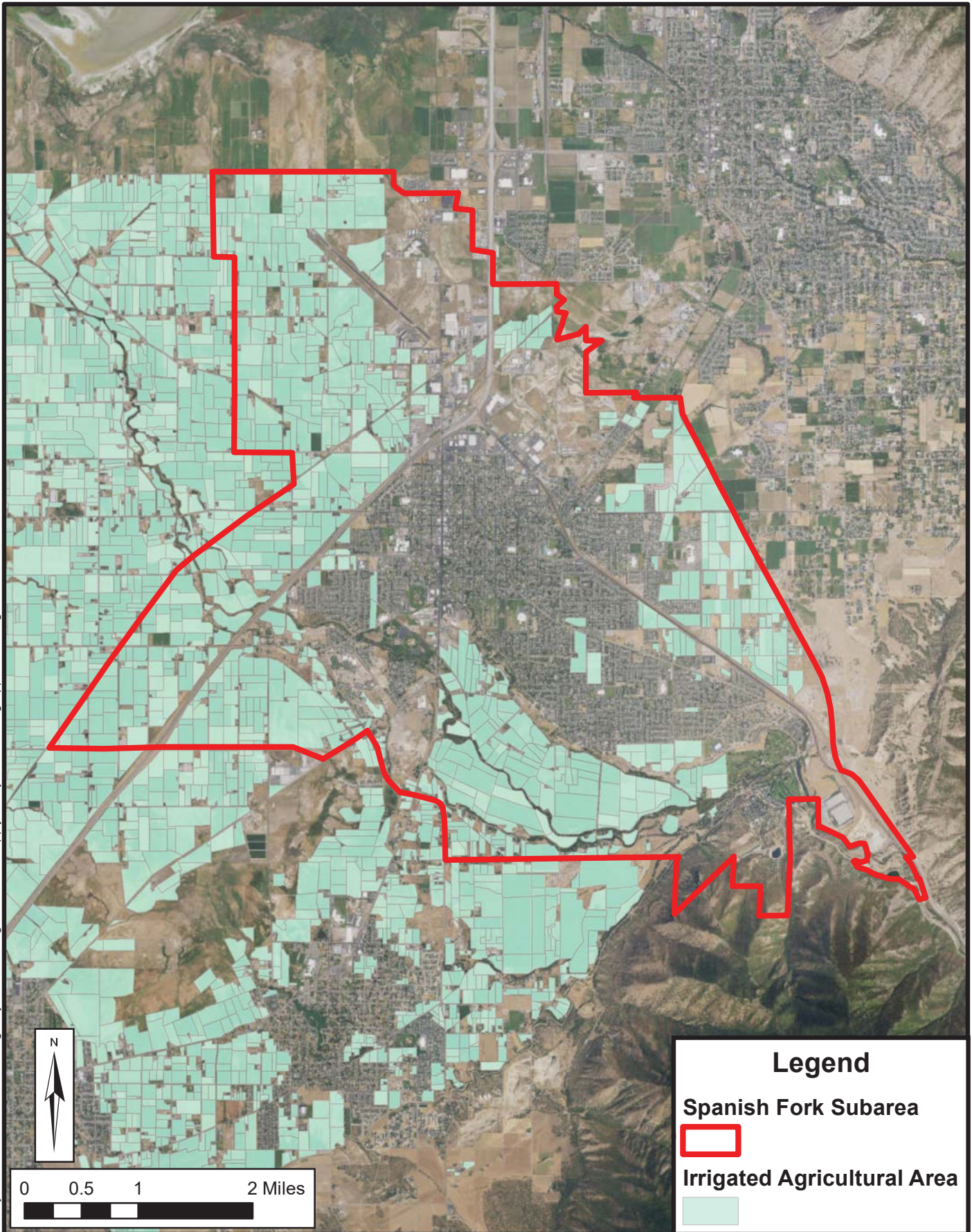
- Santaquin Subarea
- Irrigated Agricultural Area



SANTAQUIN SUBAREA IRRIGATED AREAS

**FIGURE
B-7**

Date: 9/5/2017
Document Path: H:\Projects\399 - Mt. Nebo Water Agency\01.100 - Regional Water Supply Study\GIS\Working\Appendix B\Figure B-8.mxd



Legend

- Spanish Fork Subarea
- Irrigated Agricultural Area



SPANISH FORK SUBAREA IRRIGATED AREAS

**FIGURE
B-8**

APPENDIX C

UTAH ADMINISTRATIVE CODE

authority, and shall be accepted by the Director.

(7) The Director may re-evaluate any reduction if the nature or use of the water system changes.

Guidance: The Division of Drinking Water has developed two documents to aid public water systems in understanding the information needed to request a reduction in the source or storage requirement.

- ***“Information Needed for Reduction in Source Sizing”***
- ***“Information Needed for Reduction in Storage Sizing”***

These documents are available on the Division of Drinking Water’s website.

R309-510-6. Water Conservation.

Drinking water systems shall use the water resources of the state efficiently. The minimum sizing requirements of this rule are based on typical water consumption patterns in the State of Utah. Where legally-enforceable water conservation measures exist, the sizing requirements in this rule may be reduced on a case-by-case basis by the Director.

R309-510-7. Source Sizing.

(1) Peak Day Demand and Average Yearly Demand.

Sources shall legally and physically meet water demands under two conditions:

- (a) The water system’s source capacity shall be able to meet the anticipated water demand on the day of highest water consumption, which is the peak day demand.
- (b) The water system’s source capacity shall also be able to provide one year's supply of water, which is the average yearly demand.

Guidance: Water systems should investigate the availability and validity of water rights for their systems. Consult the Division of Water Rights concerning the legal right to use water.

(2) Indoor Water Use.

Tables 510-1 and 510-2 shall be used as the minimum sizing requirements for peak day demand and average yearly demand for indoor water use unless a public water system has obtained a reduction per R309-510-5.

Table 510-1 Source Demand for Indoor Use		
Type of Connection	Peak Day Demand	Average Yearly Demand
Year-Round Use		
Residential	800 gpd/conn	146,000 gal./conn
Equivalent Residential Connection (ERC)	800 gpd/ERC	146,000 gal./ERC
Seasonal / Non-Residential Use		
Modern Recreation Camp	60 gpd/person	(See Note 1)
Semi-Developed Camp		
a. With pit privies	5 gpd/person	(See Note 1)
b. With flush toilets	20 gpd/person	(See Note 1)
Hotels, Motel & Resort	150 gpd/unit	(See Note 1)
Labor Camp	50 gpd/person	(See Note 1)
Recreational Vehicle Park	100 gpd/pad	(See Note 1)
Roadway Rest Stop	7 gpd/vehicle	(See Note 1)
Recreational Home Development (i.e., developments with limited water use) [See Note 2]	400 gpd/conn	(See Note 1)

NOTES FOR TABLE 510-1:

Note 1. Average yearly demand shall be calculated by multiplying the number of days in the designated water system operating period by the peak day demand unless a reduction has been granted in accordance with R309-510-5.

Note 2. To be considered a Recreational Home Development (i.e., developments with limited water use) as listed in Table 510-1, dwellings shall not have more than 8 plumbing fixture units, in accordance with the state-adopted plumbing code, and shall not be larger than 1,000 square feet. For a new not-yet-constructed development to be considered as a development with limited water use, it must have enforceable restrictions in place that are enforced by the water system or local authority and are accepted by the Director.

Guidance: *The Division of Drinking Water is in the process of proposing a study to gather water use data from public water systems representing various sizes, types, and locations throughout the state. The residential source demand requirements in Table 510-1 will be re-evaluated based on the water use study data.*

TABLE 510-2 Source Demand for Indoor Use - Individual Establishments (Note 1)	
Type of Establishment	Peak Day Demand (gpd) (Notes 2 & 3)
Airports	3

a. per passenger	15
b. per employee	
Boarding Houses	
a. for each resident boarder and employee	50
b. for each nonresident boarders	10
Bowling Alleys, per alley	
a. with snack bar	100
b. with no snack bar	85
Churches, per person	5
Country Clubs	
a. per resident member	100
b. per nonresident member	25
c. per employee	15
Dentist's Office	
a. per chair	200
b. per staff member	35
Doctor's Office	
a. per patient	10
b. per staff member	35
Fairgrounds, per person	1
Fire Stations, per person	
a. with full time employees and food prep	70
b. with no full time employees and no food prep	5
Gyms	
a. per participant	25
b. per spectator	4
Hairdresser	
a. per chair	50
b. per operator	35
Hospitals, per bed space	250
Industrial Buildings, per 8 hour shift, per employee (exclusive of industrial waste)	
a. with showers	35
b. with no showers	15
Launderette, per washer	580
Movie Theaters	
a. auditorium, per seat	5
b. drive-in, per car space	10
Nursing Homes, per bed space	280
Office Buildings & Business Establishments, per shift, per employee (sanitary wastes only)	
a. with cafeteria	25
b. with no cafeteria	15
Picnic Parks, per person (toilet wastes only)	5
Restaurants	

a. ordinary restaurants (not 24 hour service)	35 per seat
b. 24 hour service	50 per seat
c. single service customer utensils only	2 per customer
d. or, per customer served (includes toilet and kitchen wastes)	10
Rooming House, per person	40
Schools, per person	
a. boarding	75
b. day, without cafeteria, gym or showers	15
c. day, with cafeteria, but no gym or showers	20
d. day, with cafeteria, gym and showers	25
Service Stations	
a. per vehicle served, or	10
b. per gas pump	250
Skating Rink, Dance Halls, etc., per person	
a. no kitchen wastes	10
b. additional for kitchen wastes	3
Ski Areas, per person (no kitchen waste)	10
Stores	
a. per public toilet room	500
b. per employee	11
Swimming Pools and Bathhouses, per person (Note 4)	10
Taverns, Bars, Cocktail Lounges, per seat	20
Visitors Centers, per visitor	5

NOTES FOR TABLE 510-2:

Note 1. When more than one use will occur, the multiple uses shall be considered in determining total demand. Small industrial plants maintaining a cafeteria or showers and club houses or motels maintaining swimming pools or laundries are typical examples of multiple uses. Uses other than those listed above shall be considered in relation to established demands from known or similar installations.

Note 2. Source capacity must at least equal the peak day demand of the system. Determine this by assuming the facility is used to its maximum, e.g., the physical capacity of the facility.

Note 3. To determine the average day demand for establishments listed in Table 510-2, divide the peak day demand by 2, unless alternative data are accepted by the Director.

Guidance: Table 510-1 assumes a peaking factor of 2 between the peak day demand and the average day demand for residential connections. The same default peaking factor of 2 may be used to estimate the average day demand from the numbers in Table 510-2. Water systems may impose more stringent requirements.

Note 4. Or Peak Day Demand = 20 x [Water Area (ft²)/30] + Deck Area (ft²)

(3) Irrigation Use.

If a water system provides water for irrigation, Table 510-3 shall be used to determine the peak day demand and average yearly demand for irrigation water use. The following procedure shall be used:

- (a) Determine the location of the water system on the map entitled *Irrigated Crop Consumptive Use Zones and Normal Annual Effective Precipitation, Utah* as prepared by the Soil Conservation Service (available from the Division). Find the numbered zone, one through six, in which the water system is located (if located in an area described "non-arable" find nearest numbered zone).

Guidance: The irrigation zone map is provided below. This map is available on the Division of Drinking Water's website.

- (b) Determine the net number of acres which may be irrigated.

Guidance: To determine the net number of acres to be irrigated, start with the gross acreage, then subtract any area of roadway, driveway, sidewalk, or patio pavement along with housing foundation footprints that can be reasonably expected for lots within a new subdivision or which is representative of existing lots. Before any other land area which may be considered "non-irrigated" (e.g., steep slopes, wooded acres, etc.) is subtracted from the gross area, the Director should be consulted and agree that the land in question will not be irrigated. For instance, in the case of a heavily wooded mountain home subdivision, it may be claimed that large lawns will not be put in by the lot owners. The division should review and concur with this judgment.

- (c) Refer to Table 510-3, which assumes direct application of water to vegetation, to determine peak day demand and average yearly demand for irrigation use.

- (d) Consider water losses due to factors such as evaporation, irrigation delivery method, overwatering, pipe leaks, etc. Apply a safety factor to the irrigation demand in the design accordingly.

Table 510-3 Source Demand for Irrigation		
Map Zone	Peak Day Demand (gpm/irrigated acre)	Average Yearly Demand (AF/ irrigated acre) (Note 1)

1	2.26	1.17
2	2.80	1.23
3	3.39	1.66
4	3.96	1.87
5	4.52	2.69
6	4.90	3.26

NOTE FOR TABLE 510-3:

Note 1. The average yearly demand for irrigation water use (in acre-feet per irrigated acre) is based on 213 days of irrigation, e.g., April 1 to October 31.

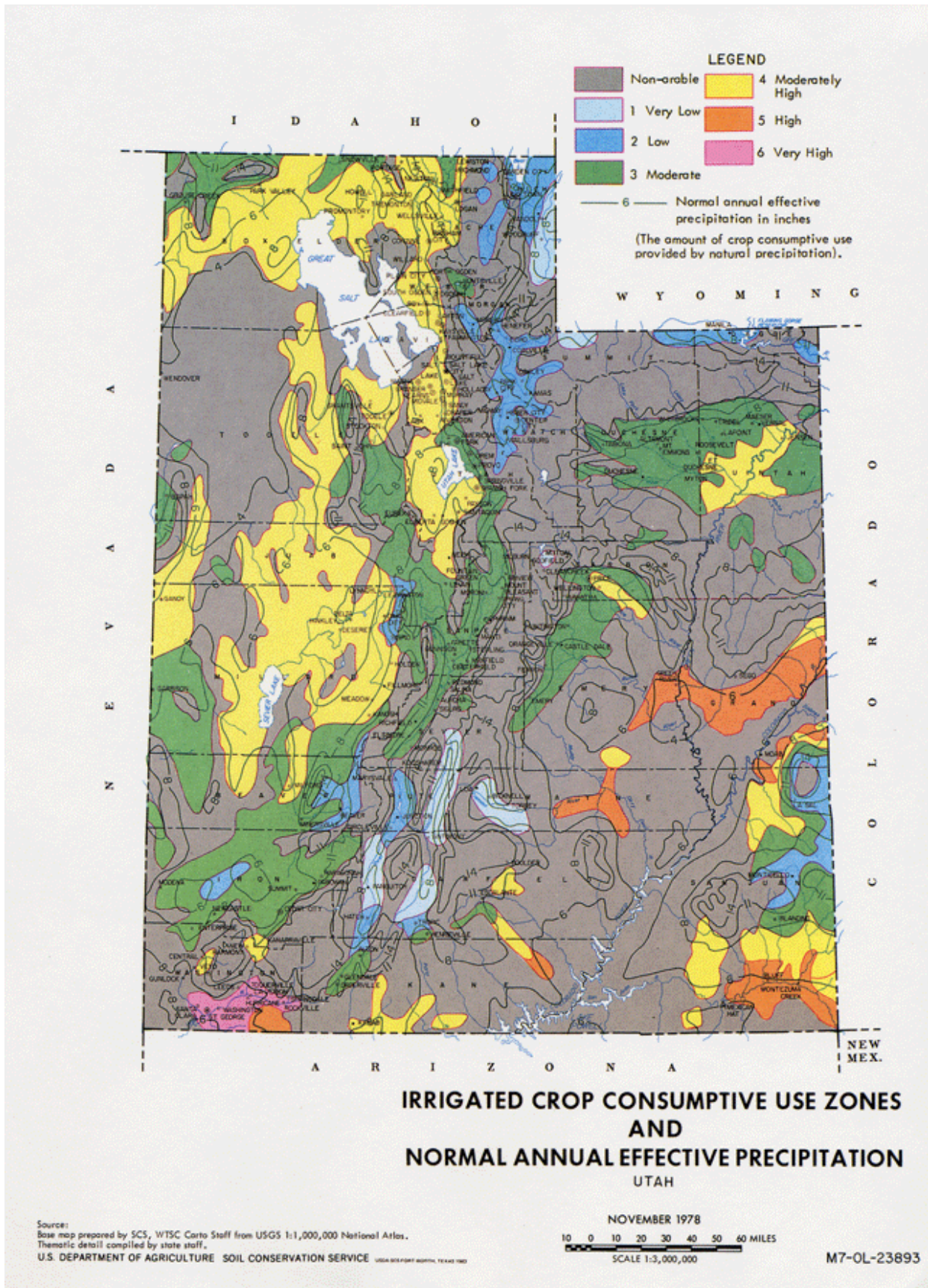
Guidance: If the irrigation season differs from the assumed 213 days, the average yearly demand numbers may need to adjusted.

(4) Variations in Source Yield.

(a) Water systems shall consider that flow from sources may vary seasonally and yearly. Where flow varies, the number of service connections supported by a source shall be based on the minimum seasonal flow rate compared to the corresponding seasonal demand.

(b) Where source capacity is limited by the capacity of treatment facilities, the maximum number of service connections shall be determined using the treatment plant design capacity instead of the source capacity.

Guidance: Some water sources, such as deep wells, yield consistent quantities of water while others, such as springs, yield inconsistent quantities that vary seasonally and annually. Sources that yield inconsistent quantities of water should be studied and understood prior to the commitment of those sources for future uses, such as providing will-serve letters or approving proposed developments.

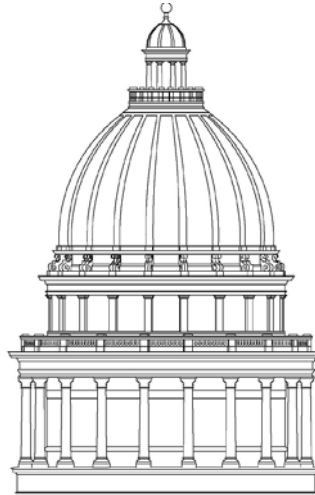


APPENDIX D

COMPARISON OF STATE STANDARDS TO ACTUAL USE

REPORT TO THE
UTAH LEGISLATURE

Number 2014-13



**A Review of the Division of Drinking Water's
Minimum Source Sizing Requirements**

December 2014

Office of the
LEGISLATIVE AUDITOR GENERAL
State of Utah

request a change due to updated information. The following table shows average indoor demand estimates provided to us by these engineers.

Figure 2.1. Average Daily Indoor Water Demand. As reported by engineers, average day indoor water demand is consistently below the state minimum source sizing requirement.

Average Indoor Water Demand in gpd/ERC	
State Requirement	400
Blanding City	207
Draper City	216
Granger-Hunter Improvement District	273
Layton City	224
Midvale City	236
Provo City	320
Salt Lake City	185
Sandy City	269
South Jordan City	202
South Salt Lake City	225
Spanish Fork City	259
Timpanogos Special Service District	249
Average	239

For every city and district sampled, the indoor water demand was less than the state source sizing requirement.

Figure 2.1 shows that for every city and district sampled, the indoor water demand is less than the state source sizing requirement. On average, the numbers reported by engineers are 40 percent below the state requirement of 400 gpd.⁵ Because these reported numbers reflect relatively large, urban water systems, the numbers may not be representative of smaller and more rural water systems.

Since indoor water use includes activities that occur throughout the year, such as the use of showers, toilets, and faucets, indoor water use is relatively stable. Hence, large seasonal peaks in demand are mostly attributable to outdoor use. Nonetheless, water systems, even indoor only systems, need to accommodate peak days or those days with the greatest demand. Activities such as filling up swimming pools and washing cars, which uses culinary water, increases the demand

⁵ Differences in reported average day demand estimates may partially reflect differences in how equivalent residential connections (ERCs) are reported. For example, Provo City's water manager stated that since there are multiple dwelling units that share a single connection, it is difficult to identify the number of ERCs.

Chapter III Outdoor Source Sizing Requirements Appear Too Low

Although the indoor source sizing standards appear to be too high, the outdoor source sizing standards appear to be too low. While our work showed that a typical homeowner uses less indoor water than the state regulations require, it appears a typical homeowner uses far more outdoor water than the amount required by Division of Drinking Water's (DDW) standards. The reason for this discrepancy is that the outdoor standards assume a perfectly efficient application of outdoor water. However, research suggests that homeowners apply far more water to their yards than is necessary. We recommend the division reexamine its outdoor source sizing standards and issue new standards that better reflect actual outdoor watering practices.

The effects of having low outdoor source sizing standards are unclear. Because most culinary water systems serve both indoor and outdoor needs, the effect of the low outdoor source sizing standards may be partially offset by indoor source sizing standards that are too high. It is also possible that water systems that do not have sufficient source supply are not reporting this concern. We encountered one water system that had insufficient source supply because they sized their water system according the state outdoor requirements.

Data Suggests Actual Outdoor Water Demand Is Higher than State Standards

As noted, the typical homeowner's outdoor water demand appears to exceed the division's source sizing standards. Based on outdoor water demand data obtained for Salt Lake City, Sandy, and Provo, we found that the actual outdoor water demand was higher than the amount required to be available by DDW regulations. Furthermore, the division director acknowledged that the outdoor source sizing requirements are too low. He stated that the division would soon undergo a process of collecting and evaluating outdoor irrigation information to determine a more appropriate set of outdoor requirements.

A typical homeowner appears to use far more outdoor water than required by the state standards.

Outdoor Water Demand Appears to Exceed State Source Sizing Requirements

We were able to obtain outdoor water use data for Salt Lake City, Sandy City, and Provo City. Although limited to just three urban cities, the data suggests that actual use was consistently above the division’s source sizing standards for outdoor annual and peak day demand. Figure 3.1 shows the state source sizing requirements (in red) for both the average and peak day outdoor water use. These requirements, which are reported in gallons per day (gpd) per equivalent residential connection (ERC), are compared against actual use (in blue) for the three cities.

Although limited to just three urban cities, the data suggests that actual use was consistently above the division’s source sizing standards.

3.1. More Outdoor Water Is Used than Is Required by the State Source Sizing Requirements. Both average day and peak day outdoor demand indicate that the state source sizing requirement is too low when compared with data from Salt Lake City, Sandy City, and Provo City.

	Average Day gpd/ERC			Peak Day gpd/ERC		
	State Standard	Actual Demand	Difference	State Standard	Actual Demand	Difference
Salt Lake City ¹	243	260	7%	830	955	15%
Sandy City ²	242	509	110%	827	1501	82%
Provo City ³	194	381	96%	640	1248	95%

¹ Source: Salt Lake City. Based on .26 average lot size, .56 percent irrigated, and 142,790 ERCs.

² Source: Sandy City. Based on .25 average lot size, .58 percent irrigated, and 32,758 ERCs.

³ Source: Provo City. Based on .23 average lot size, .57 percent irrigated, and 29,043 ERCs.

It is important to note that the state standards will differ from city to city because of differences in a city’s climate zone, average lot size, and irrigated acreage. To calculate actual use for comparison against the state standards, each city’s equivalent residential connections (ERCs) were determined. We did this by converting the commercial and institutional connections into ERCs from annual water use data. For example, if a commercial water customer uses ten times the water as an average residence, then one commercial connection is worth ten residential connections or ten ERCs. R309-110 requires all public water system managers to “review annual metered drinking water volumes delivered to non-residential connections and estimate the equivalent number of residential connections.” We found that this review is not done and inaccuracies are a concern. We asked each city to validate the ERC data in order to improve the accuracy of our analysis.

Outdoor water demand for Salt Lake City, Sandy, and Provo were found to be higher than state standards.

APPENDIX E

IRRIGATION WATER HISTORICAL AVERAGE USE

DATE: April 4, 2017
TO: Richard Noble, P.E.
Hansen, Allen & Luce, Inc. (HAL)
Mt Nebo Water Agency – Regional Water Supply Study
Project Manager

FROM: Brian Andrew, P.E.
Hansen, Allen & Luce, Inc. (HAL)
1045 South 500 East
American Fork, Utah 84003

SUBJECT: MNWA Regional Water Supply Study – Irrigation Water Supply Data

PROJECT NO.: 399.01.100

The MNWA Regional Water Supply Study includes tasks to identify and analyze the irrigation water supply for the study area. Central Utah Water Conservancy District (CUWCD) studies for the Spanish Fork Canyon – Nephi Irrigation System (SFN) conducted in 1998 included an evaluation of existing irrigation water supply within the MNWA study area. The following information was used as part of the SFN study and is applicable to the MNWA Regional Water Supply Study

CUWCD SFN SYSTEM REPORT

The SFN report includes detailed studies that determine the irrigation needs and existing water supply. Annual crop consumptive use requirements, cropping patterns and irrigation system type and efficiency were compiled to determine the net irrigation and diversion requirements per acre for the study area. Irrigation diversion records were also compiled to determine irrigation supply and shortage amounts. The period of record for the SFN study was 44 years from 1930 to 1973. The areas from the SFN report pertinent to the MNWA study are the Spanish Fork, Peteetneet and Elberta areas. Data for these areas are summarized in Table I-1.

These areas are further broken down into subareas. The Spanish Fork area consists of the following irrigation companies:

- Spanish Fork South
- Mapleton
- East Bench
- Salem
- Spanish Fork Southeast
- Spanish Fork Westfield
- Highline
- Lake Shore
- South Shore

The Peteetneet subarea consists of the Santaquin area served by water from Summit Creek, and the Goosenest area above the Highline Canal near Payson. The Elberta subarea is the area supplied by the Currant Creek Irrigation Company. The irrigation supply data from these

areas in the SFN report is summarized in Table I-2.

SPANISH FORK RIVER COMMISSIONER REPORTS

A more recent study of the irrigation water supply was performed to compare with the period of record for the SFN report. The annual reports from the Spanish Fork River Commissioner were obtained and the annual supply was summarized for the irrigation companies during the period of 17 years from 2000 to 2016. These data are summarized in Table I-3. The data includes river diversions from decreed water rights, stored Strawberry Valley Project (SVP) water, CUWCD Strawberry water, groundwater, and other sources for a historical average of irrigation water supply.

Because the area experienced extreme drought from 2000 to 2006 the period of record was expanded to 27 years of data from 1990 to 2016. These data are summarized in Table I-4. Since the CUWCD Strawberry water is provided on a short-term interim basis this amount was removed in Table I-5 which summarizes the historical annual irrigation water supply for the Spanish Fork River companies for the 27 year period of record. Based on Table I-5, the irrigation water supply recommended for use in the MNWA Study is 2.11 af/acre as an average annual irrigation water supply from all sources.

SUMMARY OF ALL IRRIGATION COMPANIES WITHIN MNWA STUDY AREA

In addition to this information described above, an irrigation company summary table is also provided to show the historic average annual irrigation diversion and supply for each of the companies in the MNWA study. This summary table is attached for reference. Companies outside of the Spanish Fork River area do not have complete diversion records and groundwater summaries. Supplies for these areas are based on Division of Water Rights records and other studies as available. Data from the SFN report were used where more recent records are not available.

DRAFT - SUBJECT TO REVISION

CLIENT: Mt. Nebo Water Agency
PROJECT: Regional Water Supply Study Phase II
PROJECT NO.: 399.01.100
DATE: March 1, 2017

SUBJECT: Average Irrigation Water Supply

Data Taken from SFN Report, Table 3-9 (page 3-21):

Area	Acreage¹ (Acres)	Existing Irrigation Water Supply² (af)	Average Irrigation Water Supply (af/ac)
Spanish Fork	45,690	101,200	2.215
Peteetneet ³	4,630	7,400	1.598
Elberta	1,890	2,300	1.217
Totals	52,210.00	110,900	2.124

Notes:

- ¹ Based on 75,570 acres used in the water supply analysis
- ² Existing water supply is based on the amounts presently used to meet demands on lands to be served by the SFN System
- ³ This area consists of the Santaquin area served by water from Summit Creek, and the Goosenest area along the High Line Canal near Payson

DRAFT - SUBJECT TO REVISION

CLIENT: Mt. Nebo Water Agency
PROJECT: Regional Water Supply Study Phase II
PROJECT NO.: 399.01.100
DATE: March 1, 2017

SUBJECT: Average Irrigation Water Supply
Data Taken from SFN Report, Table 3-16 (page 3-34 to 3-38):

Irrigation Company	Acreage (Acres)	Historical Diversions from River (af)	Demand met by Wells (af)	Total Irrigation Water Supply (af)	Irrigation Water Supply from River (af/ac)	Irrigation Water Supply from All Sources (af/ac)
Spanish Fork South	6,667.00	13,000.00	2,470.00	15,470.00	1.95	2.32
Mapleton	3,825.00	9,100.00	440.00	9,540.00	2.38	2.49
East Bench	4,251.00	12,500.00	600.00	13,100.00	2.94	3.08
Salem	2,035.00	6,500.00	990.00	7,490.00	3.19	3.68
Spanish Fork Southeast	947.00	1,800.00	180.00	1,980.00	1.90	2.09
Spanish Fork Westfield	6,628.00	13,600.00	1,330.00	14,930.00	2.05	2.25
Highline	19,940.00	39,200.00	5,210.00	44,410.00	1.97	2.23
Lake Shore	4,274.00	6,700.00	2,550.00	9,250.00	1.57	2.16
South Shore	515.00	-	-	-	-	-
Sp. Fk Sub area Totals ¹	49,082.00	102,400.00	13,770.00	116,170.00	2.09	2.37
Summit Creek ²	4,630.00	8,800.00	2,900.00	11,700.00	1.90	2.53
Currant Creek ³	6,274.00	9,000.00	-	9,000.00	1.43	1.43
Totals	59,986.00	120,200.00	16,670.00	136,870.00	2.00	2.28

Notes:

¹ The acreage reduction to 45,690 from 51,203 was made by excluding the unirrigated acreage and townsite land and by reducing the irrigated acreage to account for land that already has a sufficient water supply from local sources

² Peteetneet Area - See footnote 3 from Table 3-9

³ Elberta Area

⁴ Period of Record for the study is 1930 - 1973 (44 years)

CLIENT: Mt. Nebo Water Agency
PROJECT: Regional Water Supply Study Phase II
PROJECT NO.: 399.01.100
DATE: March 15, 2017
SUBJECT: Spanish Fork River Companies - Average Irrigation Water Supply

Table I-3. HISTORICAL ANNUAL IRRIGATION WATER SUPPLY OF SPANISH FORK RIVER COMPANIES (2000 - 2016)

Name	Service Area (Acres)	Decreed River Diversion ¹ (ac-ft)	Stored Strawberry Diversion (ac-ft)	CUWCD Strawberry (ac-ft)	Historical Water Supply from River ² (ac-ft)	Groundwater Wells (ac-ft)	Return Flow (ac-ft)	Irrigation Water Supply from All Sources (ac-ft)	Average Irrigation Water Supply from River (ac-ft/acre)	Average Irrigation Water Supply from All Sources (ac-ft/acre)
East Bench Canal Company	4,039	3,988.8	4,596.6	127.2	8,712.60	600.00		9,312.60	2.16	2.31
Lake Shore Irrigation Company	4,540	2,069.7	1,667.1	1,376.1	5,112.90			5,112.90	1.13	1.13
Salem Irrigation and Canal Company	2,465	4,366.0	89.9	42.3	4,498.20	990.00		5,488.20	1.82	2.23
Spanish Fork South Irrigation Company	6,572	7,171.0	3,470.1	2,133.7	12,774.80	2,450.00		15,224.80	1.94	2.32
Spanish Fork Southeast Irrigation	891	1,595.4	-	143.1	1,738.50	836.00		2,574.50	1.95	2.89
Spanish Fork West Field Irrigation Company	6,613	9,704.1	2,001.4	1,507.3	13,212.80	1,330.00		14,542.80	2.00	2.20
Strawberry High Line Canal Company	19,940	2,471.5	34,672.4	5,919.6	43,063.50	6,500.00	1,800.00	51,363.50	2.16	2.58
Totals	45,060.00	31,366.5	46,497.5	11,249.3	89,113.30	12,706.00	1,800.00	103,619.30	1.98	2.30

¹ Decreed River Diversion Amount is based on 17 years of data from the Spanish Fork River Commissioner Reports 2000 - 2016

² Historical water supply from River equals the Sum of Decreed River, Stored Stawberry and CUWCD Strawberry

Table I-4. HISTORICAL ANNUAL IRRIGATION WATER SUPPLY OF SPANISH FORK RIVER COMPANIES (1990 - 2016)

Name	Service Area (Acres)	Decreed River Diversion ¹ (ac-ft)	Stored Strawberry Diversion (ac-ft)	CUWCD Strawberry (ac-ft)	Historical Water Supply from River ² (ac-ft)	Groundwater Wells (ac-ft)	Return Flow (ac-ft)	Irrigation Water Supply from All Sources (ac-ft)	Average Irrigation Water Supply from River (ac-ft/acre)	Average Irrigation Water Supply from All Sources (ac-ft/acre)
East Bench Canal Company	4,039	4,861.3	4,843.1	398.6	10,103.00	600.00		10,703.00	2.50	2.65
Lake Shore Irrigation Company	4,540	2,555.1	1,818.5	1,107.0	5,480.60			5,480.60	1.21	1.21
Salem Irrigation and Canal Company	2,465	4,684.6	187.9	76.8	4,949.30	990.00		5,939.30	2.01	2.41
Spanish Fork South Irrigation Company	6,572	7,640.3	3,256.1	1,748.3	12,644.70	2,450.00		15,094.70	1.92	2.30
Spanish Fork Southeast Irrigation	891	1,566.7	27.0	129.1	1,722.80	836.00		2,558.80	1.93	2.87
Spanish Fork West Field Irrigation Company	6,613	9,681.4	2,242.1	1,368.6	13,292.10	1,330.00		14,622.10	2.01	2.21
Strawberry High Line Canal Company	19,940	3,285.5	33,785.1	5,485.1	42,555.70	6,500.00	1,800.00	50,855.70	2.13	2.55
Totals	45,060.00	34,274.9	46,159.8	10,313.5	90,748.20	12,706.00	1,800.00	105,254.20	2.01	2.34

¹ Decreed River Diversion Amount is based on 27 years of data from the Spanish Fork River Commissioner Reports 1990 - 2016

² Historical water supply from River equals the Sum of Decreed River, Stored Stawberry and CUWCD Strawberry

CLIENT: Mt. Nebo Water Agency
PROJECT: Regional Water Supply Study Phase II
PROJECT NO.: 399.01.100
DATE: March 15, 2017

SUBJECT: Spanish Fork River Companies - Average Irrigation Water Supply

Table I-5. HISTORICAL ANNUAL IRRIGATION WATER SUPPLY OF SPANISH FORK RIVER COMPANIES (1990 - 2016) WITHOUT CUP INTERIM SUPPLY

Name	Service Area (Acres)	Decreed River Diversion ¹ (ac-ft)	Stored Strawberry Diversion (ac-ft)	CUWCD Strawberry (ac-ft)	Historical Water Supply from River ² (ac-ft)	Groundwater Wells (ac-ft)	Return Flow (ac-ft)	Irrigation Water Supply from All Sources (ac-ft)	Average Irrigation Water Supply from River (ac-ft/acre)	Average Irrigation Water Supply from All Sources (ac-ft/acre)
East Bench Canal Company	4,039	4,861.3	4,843.1	-	9,704.40	600.00		10,304.40	2.40	2.55
Lake Shore Irrigation Company	4,540	2,555.1	1,818.5	-	4,373.60			4,373.60	0.96	0.96
Salem Irrigation and Canal Company	2,465	4,684.6	187.9	-	4,872.50	990.00		5,862.50	1.98	2.38
Spanish Fork South Irrigation Company	6,572	7,640.3	3,256.1	-	10,896.40	2,450.00		13,346.40	1.66	2.03
Spanish Fork Southeast Irrigation	891	1,566.7	27.0	-	1,593.70	836.00		2,429.70	1.79	2.73
Spanish Fork West Field Irrigation Company	6,613	9,681.4	2,242.1	-	11,923.50	1,330.00		13,253.50	1.80	2.00
Strawberry High Line Canal Company	19,940	3,285.5	33,785.1	-	37,070.60	6,500.00	1,800.00	45,370.60	1.86	2.28
Totals	45,060.00	34,274.9	46,159.8	-	80,434.70	12,706.00	1,800.00	94,940.70	1.79	2.11

¹ Decreed River Diversion Amount is based on 27 years of data from the Spanish Fork River Commissioner Reports 1990 - 2016

² Historical water supply from River equals the Sum of Decreed River and Stored Stawberry

CLIENT: Mt. Nebo Water Agency
PROJECT: Regional Water Supply Study Phase II
PROJECT NO.: 399.01.100
DATE: February 22, 2017 Updated October 30, 2017

SUBJECT: Summary of Irrigation Company Water Demand and Supply

Name	Service Area (Acres)	Self Reported Area (Acres)	DWRi Records (Acres)	Irrigated Acres (Tables from SFN Report)	Water Demand:		Water Supply:		Surface Water (af)	Groundwater Wells (af)
					Canal Diversion Capacity (cfs)	Diversion Requirement (af/ac)	Irrigation Demand (af)	Total Irrigation Water Supply (af)		
Current Creek Irrigation Company	6,274	5,000		6,274.00	45.00	3.19	20,014.06	9,028.00	9,000.00	28.00
Duck Creek Irrigation Company	434		433.75		6.00	2.90	1,255.71	1,735.00	1,735.00	
East Bench Canal Company	4,251		4,039.00	4,251.00	95.00	3.31	14,079.31	6,144.00	6,144.00	
East Santaquin Irrigation Company	459		458.78		4.00	3.13	1,435.98	882.24		882.24
East Warm Creek Irrigation and Canal Company	210		209.88		2.55	3.19	669.52	843.14	843.14	
Elberta Water Company	29		29.21		0.55	3.19	93.18	90.85		90.85
Goshen Irrigation and Canal Company	2,341	1,300	2,340.87		19.00	3.19	7,467.38	2,800.00	2,800.00	
Lake Shore Irrigation Company	4,540	4,540	4,540.00	4,274.00	60.00	2.58	11,717.74	4,873.60	2,555.10	500.00
Loafer Water Users Association	38		38.15		0.05	2.90	110.44	157.36	38.15	119.21
New Northeast Spanish Fork Irrigation Company	236		236.00			2.58	609.12	944.00	944.00	
Old Field Water Users Association	432	432			2.00	2.90	1,250.64	-		
Salem Irrigation and Canal Company	2,465		2,465.00	2,035.00	55.00	2.58	6,362.17	5,862.50	4,684.60	990.00
Salem Pond Company	968		967.70		7.00	2.88	2,788.91	2,520.00		2,520.00
Spanish Fork South Irrigation Company	6,667	6,570	6,572.00	6,667.00	75.00	2.58	17,207.53	13,346.40	7,640.30	2,450.00
Spanish Fork Southeast Irrigation Class A Shares (river)	947		891.00	947.00	15.00	2.58	2,444.21	1,566.70	1,566.70	
Spanish Fork Southeast Irrigation Class B Shares (well)	209		209.00		8.00	2.58	539.43	836.00	836.00	
Spanish Fork West Field Irrigation Company	6,628		6,613.00	6,628.00	82.00	2.58	17,106.87	13,253.50	9,681.40	1,330.00
Spring Lake Water Works Company	2		2.00			2.90	5.79	31.19		31.19
Strawberry High Line Canal Company	19,940			19,940.00	300.00	2.90	57,726.30	53,344.20	3,285.50	3,273.60
Summit Creek Irrigation & Canal Company	2,153		2,152.89		30.00	3.13	6,738.54	8,540.00	5,640.00	2,900.00
Warm Springs Irrigation and Power Company	1,437		1,436.62		9.65	2.58	3,707.92	3,701.33	3,701.33	
Wash Creek Irrigation Company	375		375.00		2.23	2.58	967.88	2,135.16	864.00	1,271.16
Totals	61,033.85	17,842.00	34,009.85	51,016.00	818.03	2.86	174,298.61	132,635.17	61,959.22	16,386.25

CLIENT:
PROJECT:
PROJECT NO.:
DATE:

SUBJECT:

Name	SVP Water (af)	CUP Water (af)	Return Flow (af)	Potential Shortage (af)	Average Requirement (ac-ft/acre)	Historical Average Irrigation Water Supply from All Sources (ac-ft/acre)
Current Creek Irrigation Company				10,986.06	3.19	1.44
Duck Creek Irrigation Company				(479.29)	2.90	4.00
East Bench Canal Company				7,935.31	3.31	1.45
East Santaquin Irrigation Company				553.74	3.13	1.92
East Warm Creek Irrigation and Canal Company				(173.63)	3.19	4.02
Elberta Water Company				2.33	3.19	3.11
Goshen Irrigation and Canal Company				4,667.38	3.19	1.20
Lake Shore Irrigation Company	1,818.50			6,844.14	2.58	1.07
Loafer Water Users Association				(46.92)	2.90	4.12
New Northeast Spanish Fork Irrigation Company				(334.88)	2.58	4.00
Old Field Water Users Association				1,250.64	2.90	-
Salem Irrigation and Canal Company	187.90			499.67	2.58	2.38
Salem Pond Company				268.91	2.88	2.60
Spanish Fork South Irrigation Company	3,256.10			3,861.13	2.58	2.00
Spanish Fork Southeast Irrigation Class A Shares (river)				877.51	2.58	1.65
Spanish Fork Southeast Irrigation Class B Shares (well)				(296.57)	2.58	4.00
Spanish Fork West Field Irrigation Company	2,242.10			3,853.37	2.58	2.00
Spring Lake Water Works Company				(25.40)	2.90	15.60
Strawberry High Line Canal Company	33,785.10		13,000.00	4,382.10	2.90	2.68
Summit Creek Irrigation & Canal Company				(1,801.46)	3.13	3.97
Warm Springs Irrigation and Power Company				6.59	2.58	2.58
Wash Creek Irrigation Company				(1,167.29)	2.58	5.69
Totals	41,289.70	-	13,000.00	41,663.43	2.86	2.17

APPENDIX F

WATER REQUIREMENTS CALCULATIONS

Elkridge City

Population	Decennial Census	Population Estimate*	DWRI Report	Long Range Projection**	Build Out Population^	Number of Connections	Number of Connections
Year	2010	2015	2015	2060		2015	2016
Number of People	2,436	3,183	3,400	8,500	7,902	793	840^^

*United States Census Bureau Official census data for 2015 released May 2016

**Utah Governors Office of Management and Budget, Municipal Population Projections 2010-2060 with 2012 Baseline Projections

^Elk Ridge City Capital Facilities Plan and Impact Fee Analysis Update 2014, Aqua Engineering, September 2014.

^^Phone conversation with Royce at Elk Ridge City, royce@elkridgecity.org.

Governor's Office Projected Growth	Census		Projections				
	2010	2014	2020	2030	2040	2050	2060
Population	2,436	3,019	3,898	4,696	5,888	7,100	8,500
Annual Growth Rate			4.4%	1.9%	2.3%	1.9%	1.8%

*United States Census Bureau Official census data for 2015 released May 2016

**Utah Governors Office of Management and Budget, Municipal Population Projections 2010-2060 with 2012 Baseline Projections

Envision Utah Projected Growth	Census		Projections				
	2010	2013	2020	2030	2040	2050	2060
Population*		42,067	48,463	64,065	86,755	119,967	
Annual Growth Rate			2.0%	2.8%	3.1%	3.3%	

*Wasatch Front 2015 Market-Driven Growth Scenario prepared by Envision Utah

**United States Census Bureau Official census data for 2015 released May 2016

City Connections	Indoor Water	Outdoor Water
2014 ERC's*	769	769
Build-out ERC's*	2,216	NA

*Capital Facilities Plan and Impact Fee Analysis Update 2014.

DWRI Reported Indoor Connections for 2015 = 793

DWRI Reported Indoor Water Use for 2015 = 1,026 acre-feet

Indoor Connections for 2016 are 840 from Phone conversation with Royce at Elk Ridge City, royce@elkridgecity.org.

City Connectio	Indoor Water	Outdoor Water
2016 ERC's*	871	871
Build-out ERC's*		NA

*Elk Ridge Water Conservation Plan 2016, 859 residential and 4 institutic

Elk Ridge Projected Water Requirement

Year	Population Projection (Envision Utah)	Population Projection (Governor's Office Growth Rate)	Drinking Water				Pressurized Irrigation				
			ERC'S	Volume Annual Demand (acre-feet)	Flow Peak Day Demand (gpm)	Storage (MG)	ERC'S	Volume Annual Demand (acre-feet)	Flow Peak Day Demand (gpm)	Storage (MG)	
2013	2,860										
2014	2,918	3,019	769	258	214	0.3	769	346	692	1.0	
2015	2,978	3,150	802	270	223	0.3	802	361	722	1.1	
2016	3,039	3,287	871	293	242	0.3	871	392	784	1.2	Existing
2017	3,101	3,430	909	305	252	0.4	909	409	818	1.2	
2018	3,164	3,580	948	319	263	0.4	948	427	854	1.3	
2019	3,229	3,735	990	333	275	0.4	990	445	891	1.3	
2020	3,295	3,898	1,033	347	287	0.4	1,033	465	929	1.4	
2021	3,388	3,971	1,052	354	292	0.4	1,052	473	947	1.4	
2022	3,484	4,046	1,072	360	298	0.4	1,072	482	965	1.4	
2023	3,583	4,122	1,092	367	303	0.4	1,092	491	983	1.5	
2024	3,684	4,199	1,113	374	309	0.4	1,113	501	1,001	1.5	
2025	3,788	4,278	1,134	381	315	0.5	1,134	510	1,020	1.5	
2026	3,895	4,359	1,155	388	321	0.5	1,155	520	1,039	1.6	
2027	4,006	4,441	1,177	395	327	0.5	1,177	529	1,059	1.6	
2028	4,119	4,524	1,199	403	333	0.5	1,199	539	1,079	1.6	
2029	4,236	4,609	1,221	410	339	0.5	1,221	550	1,099	1.6	
2030	4,356	4,696	1,244	418	346	0.5	1,244	560	1,120	1.7	
2031	4,490	4,803	1,273	428	354	0.5	1,273	573	1,145	1.7	
2032	4,628	4,913	1,302	437	362	0.5	1,302	586	1,172	1.8	
2033	4,770	5,026	1,332	447	370	0.5	1,332	599	1,198	1.8	
2034	4,917	5,141	1,362	458	378	0.5	1,362	613	1,226	1.8	
2035	5,069	5,258	1,393	468	387	0.6	1,393	627	1,254	1.9	
2036	5,225	5,379	1,425	479	396	0.6	1,425	641	1,283	1.9	
2037	5,385	5,502	1,458	490	405	0.6	1,458	656	1,312	2.0	
2038	5,551	5,628	1,491	501	414	0.6	1,491	671	1,342	2.0	
2039	5,722	5,756	1,525	512	424	0.6	1,525	686	1,373	2.1	
2040	5,898	5,888	1,560	524	433	0.6	1,560	702	1,404	2.1	
2041	6,080	5,999	1,589	534	442	0.6	1,589	715	1,431	2.1	
2042	6,267	6,113	1,620	544	450	0.6	1,620	729	1,458	2.2	
2043	6,460	6,228	1,650	554	458	0.7	1,650	743	1,485	2.2	
2044	6,659	6,346	1,681	565	467	0.7	1,681	757	1,513	2.3	
2045	6,864	6,466	1,713	576	476	0.7	1,713	771	1,542	2.3	
2046	7,075	6,588	1,745	586	485	0.7	1,745	785	1,571	2.4	
2047	7,293	6,712	1,778	598	494	0.7	1,778	800	1,601	2.4	
2048	7,517	6,839	1,812	609	503	0.7	1,812	815	1,631	2.4	
2049	7,749	6,968	1,846	620	513	0.7	1,846	831	1,662	2.5	
2050	7,987	7,100	1,881	632	523	0.8	1,881	847	1,693	2.5	
2051		7,229	1,915	644	532	0.8	1,917	863	1,725	2.6	
2052		7,360	1,950	655	542	0.8	1,953	879	1,758	2.6	
2053		7,494	1,985	667	552	0.8	1,990	895	1,791	2.7	
2054		7,630	2,022	679	562	0.8	2,027	912	1,825	2.7	
2055		7,769	2,058	692	572	0.8	2,066	930	1,859	2.8	
2056		7,910	2,096	704	582	0.8	2,105	947	1,894	2.8	Build-out
2057		8,053	2,134	717	593	0.9	2,144	965	1,930	2.9	
2058		8,199	2,172	730	603	0.9	2,185	983	1,967	2.9	
2059		8,348	2,212	743	614	0.9	2,226	1,002	2,004	3.0	
2060		8,500	2,252	757	626	0.9	2,268	1,021	2,042	3.1	

Goshen Valley Local District

Population	Decennial Census	Population Estimate*	DWRI Report	Long Range Projection*	Build Out Population ^A
Year	2010	2015	2015	2060	
Number of People	256 (Elberta)		230		330,000

*United States Census Bureau Official census data for 2015 released May 2016

**Utah Governor's Office of Management and Budget, Municipal Population Projections 2010-2060 with 2012 Baseline Projections

^AUtah County Goshen Valley Specific Area Plan

Utah County Goshen Valley Local Specific Area Plan	Projections						
	Census		Projections				
	2010	2015	2020	2030	2040	2050	2060
Population	0	230					330,000
Annual Growth Rate			17.5%	17.5%	17.5%	17.5%	17.5%

*Utah County Goshen Valley Local Specific Area Plan, Fregonese Associates, 2016

Governor's Office Projected Growth	Projections						
	Unincorporated Utah County						
	2010	2015	2020	2030	2040	2050	2060
Population	10,009	8,769	28,404	24,101	38,998	60,195	86,074
Annual Growth Rate**			26.5%	-1.6%	4.9%	4.4%	3.6%

*Utah Governor's Office of Management and Budget, Municipal Population Projections 2010-2060 with 2012 Baseline Projections

**Growth Rate from 2030-2040 used in population projection calculates for 2015-2020 and 2021-2030.

Governor's Office Projected Growth Rates for Goshen Town Applied to Elberta	Projections					
	Census		Projections			
	2010	2011	2012	2013	2014	2015
Goshen Town Population	921	933	936	946	954	944
Annual Growth Rate		1%	0.3%	1.1%	0.8%	-1.0%

*Utah Governor's Office of Management and Budget, Municipal Population Projections 2010-2060 with 2012 Baseline Projections

Envision Utah Projected Growth	Census		Projections				
	Census	Census Bureau	Projections				
	2010	2013	2020	2030	2040	2050	2060
Elberta, Goshen Town, West Lake	1,177	1,209	5,562	19,165	38,981	67,766	
Population*			24.4%	13.2%	7.4%	5.7%	
Annual Growth Rate							

*Wasatch Front 2015 Market-Driven Growth Scenario prepared by Envision Utah

**United States Census Bureau Official census data for 2015 released May 2016

Connections	Indoor Water				Outdoor Water			
	Domestic	Commercial/Industrial	Institutional (schools, churches)	Institutional (City)	Total	Residential	Commercial	Total
Connections	54	3						
2015 ERCs*	54	12			66			

*DWRI report of connections and water use for 2015

DWRI Reported Indoor Connections for 2015 = 54

DWRI Reported Indoor Water Use for 2015 = 83.6 acre-feet

The number of ERCs used in our analysis was based on Envision Utah population projection and 3.6 ERCs per capita. 2015 Envision population of 407 yields 113 ERCs in 2015.

Goshen Valley/Elberta Water Requirements

Year	Population Projection (Envision Utah)	Population Projection (Governor's Office Growth Rate)	Indoor Water				Outdoor Irrigation				Agriculture Water*			
			ERC'S	Annual Volume (ac-ft)	Peak Day Flow (gpm)	Storage (MG)	ERC'S	Annual Volume (ac-ft)	Peak Day Flow (gpm)	Storage (MG)	Irrigated Agriculture Land (acres)	Annual Volume (ac-ft)	Peak Day Flow (gpm)	
2010		256												
2011		259												
2012		260												
2013	263	263												
2014	327	265												
2015	407	262	113	38	31	0.05	113	51	102	0.15				
2016	506	275	141	47	39	0.06	141	63	126	0.19	13,370	40,110	49,328	Existing
2017	629	289	175	59	49	0.07	175	79	157	0.24				
2018	782	303	217	73	60	0.09	217	98	196	0.29				
2019	973	318	270	91	75	0.11	270	122	243	0.36				
2020	1210	334	336	113	93	0.13	336	151	303	0.45				
2021	1,369	350	380	128	106	0.15	380	171	342	0.51				
2022	1,550	368	431	145	120	0.17	431	194	387	0.58				
2023	1,754	386	487	164	135	0.19	487	219	438	0.66				
2024	1,985	405	551	185	153	0.22	551	248	496	0.74				
2025	2,246	425	624	210	173	0.25	624	281	562	0.84				
2026	2,542	446	706	237	196	0.28	706	318	636	0.95				
2027	2,877	467	799	269	222	0.32	799	360	719	1.08				
2028	3,255	491	904	304	251	0.36	904	407	814	1.22				
2029	3,684	515	1,023	344	284	0.41	1,023	461	921	1.38				
2030	4,169	540	1,158	389	322	0.46	1,158	521	1,042	1.56				
2031	4,476	567	1,243	418	345	0.50	1,243	560	1,119	1.68				
2032	4,805	595	1,335	449	371	0.53	1,335	601	1,201	1.80				
2033	5,159	624	1,433	482	398	0.57	1,433	645	1,290	1.93				
2034	5,539	655	1,539	517	427	0.62	1,539	692	1,385	2.08				
2035	5,946	687	1,652	555	459	0.66	1,652	743	1,487	2.23				
2036	6,384	721	1,773	596	493	0.71	1,773	798	1,596	2.39				
2037	6,853	756	1,904	640	529	0.76	1,904	857	1,714	2.57				
2038	7,358	794	2,044	687	568	0.82	2,044	920	1,840	2.76				
2039	7,899	833	2,194	737	610	0.88	2,194	987	1,975	2.96				
2040	8,480	874	2,356	792	654	0.94	2,356	1,060	2,120	3.18				
2041	8,962	913	2,490	837	692	1.00	2,490	1,120	2,241	3.36				
2042	9,472	953	2,631	884	731	1.05	2,631	1,184	2,368	3.55				
2043	10,010	995	2,781	934	772	1.11	2,781	1,251	2,503	3.75				
2044	10,579	1,040	2,939	988	816	1.18	2,939	1,323	2,645	3.97				
2045	11,181	1,086	3,106	1,044	863	1.24	3,106	1,398	2,796	4.19				
2046	11,817	1,134	3,283	1,103	912	1.31	3,283	1,477	2,955	4.43				
2047	12,489	1,184	3,469	1,166	964	1.39	3,469	1,561	3,122	4.68				
2048	13,199	1,237	3,667	1,232	1,019	1.47	3,667	1,650	3,300	4.95				
2049	13,949	1,292	3,875	1,302	1,076	1.55	3,875	1,744	3,488	5.23				
2050	14,742	1,349	4,095	1,376	1,138	1.64	4,095	1,843	3,686	5.53				
2051	15,580	1,398	4,328	1,454	1,202	1.73	4,328	1,948	3,896	5.84				
2052	16,466	1,449	4,574	1,537	1,271	1.83	4,574	2,058	4,117	6.18				
2053	17,402	1,502	4,835	1,624	1,343	1.93	4,835	2,176	4,351	6.53				
2054	18,392	1,556	5,109	1,717	1,419	2.04	5,109	2,299	4,598	6.90				
2055	19,437	1,613	5,400	1,814	1,500	2.16	5,400	2,430	4,860	7.29				
2056	20,543	1,672	5,707	1,918	1,585	2.28	5,707	2,568	5,136	7.70				
2057	21,711	1,733	6,031	2,027	1,675	2.41	6,031	2,714	5,428	8.14				
2058	22,945	1,796	6,374	2,142	1,771	2.55	6,374	2,868	5,737	8.61				
2059	24,249	1,861	6,737	2,264	1,871	2.69	6,737	3,032	6,063	9.09				
2060	25,628	1,929	7,120	2,392	1,978	2.85	7,120	3,204	6,408	9.61	13,370	40,110	49,328	Future

City of Woodland Hills

Population					
	Decennial Census	Population Estimate*	DWRI Report	Long Range Projection**	Build Out Population
Year	2010	2015	2015	2060	
Number of People	1,344	1,482	1,640	5,300	

*United States Census Bureau Official census data for 2015 released May 2016

**Utah Governors Office of Management and Budget, Municipal Population Projections 2010-2060 with 2012 Baseline Projections

Governor's Office Projected Growth	Census						
	2010	2015	2020	2030	2040	2050	2060
Population	1,344	1,482	1,943	3,001	3,764	4,700	5,300
Growth Rate			5.6%	4.4%	2.3%	2.2%	1.2%

*Utah Governors Office of Management and Budget, Municipal Population Projections 2010-2060 with 2012 Baseline Projections

Envision Utah Projected Growth	Census						
	2010	2013	2020	2030	2040	2050	2060
Payson, Santaquin, Salem, Woodland Hills, Elk Ridge, Genola							
Population*		42,067	48,463	64,065	86,755	119,967	
Annual Growth Rate			2.0%	2.8%	3.1%	3.3%	

*Wasatch Front 2015 Market-Driven Growth Scenario prepared by Envision Utah

**United States Census Bureau Official census data for 2015 released May 2016

City Data	Drinking Water	Pressurized Irrigation
2015 ERC's*	412	412
Build-out ERC's		

*Based on assumed 3.6 people per ERC

DWRI Reported Indoor Connections for 2015 = 382 connections

DWRI Reported Indoor Water Use for 2015 = 279 acre-feet

Woodland Hills Projected Water Requirement

Year	Population Projection (Envision Utah)	Population Projection (Governor's Office Growth Rate)	Drinking Water				Pressurized Irrigation				
			ERC'S	Volume Annual Demand (acre-feet)	Flow Peak Day Demand (gpm)	Storage (MG)	ERC'S	Volume Annual Demand (acre-feet)	Flow Peak Day Demand (gpm)	Storage (MG)	
2013	1,445										
2014	1,475										
2015	1,505	1,482	412	138	114	0.2	412	185	371	0.6	
2016	1,535	1,564	435	146	121	0.2	435	196	391	0.6	Existing
2017	1,567	1,652	459	154	128	0.2	459	207	413	0.6	
2018	1,599	1,744	485	163	135	0.2	485	218	436	0.7	
2019	1,631	1,841	512	172	142	0.2	512	230	461	0.7	
2020	1,665	1,943	540	181	150	0.2	540	243	486	0.7	
2021	1,712	2,029	564	190	157	0.2	564	254	508	0.8	
2022	1,760	2,119	589	198	164	0.2	589	265	530	0.8	
2023	1,810	2,214	615	207	171	0.2	615	277	554	0.8	
2024	1,861	2,312	643	216	179	0.3	643	289	578	0.9	
2025	1,914	2,415	671	226	186	0.3	671	302	604	0.9	
2026	1,968	2,522	701	236	195	0.3	701	316	631	0.9	
2027	2,024	2,634	732	246	203	0.3	732	330	659	1.0	
2028	2,081	2,751	765	257	212	0.3	765	344	688	1.0	
2029	2,140	2,873	799	268	222	0.3	799	359	719	1.1	
2030	2,201	3,001	834	280	232	0.3	834	375	751	1.1	
2031	2,268	3,070	853	287	237	0.3	853	384	768	1.2	
2032	2,338	3,140	873	293	242	0.3	873	393	786	1.2	
2033	2,410	3,212	893	300	248	0.4	893	402	804	1.2	
2034	2,484	3,286	913	307	254	0.4	913	411	822	1.2	
2035	2,561	3,361	934	314	260	0.4	934	420	841	1.3	
2036	2,640	3,438	956	321	265	0.4	956	430	860	1.3	
2037	2,721	3,517	978	328	272	0.4	978	440	880	1.3	
2038	2,805	3,597	1,000	336	278	0.4	1,000	450	900	1.4	
2039	2,891	3,680	1,023	344	284	0.4	1,023	460	921	1.4	
2040	2,980	3,764	1,046	352	291	0.4	1,046	471	942	1.4	
2041	3,078	3,849	1,070	359	297	0.4	1,070	481	963	1.4	
2042	3,180	3,935	1,094	368	304	0.4	1,094	492	985	1.5	
2043	3,284	4,023	1,118	376	311	0.4	1,118	503	1,007	1.5	
2044	3,393	4,114	1,144	384	318	0.5	1,144	515	1,029	1.5	
2045	3,504	4,206	1,169	393	325	0.5	1,169	526	1,052	1.6	
2046	3,620	4,300	1,196	402	332	0.5	1,196	538	1,076	1.6	
2047	3,739	4,397	1,222	411	340	0.5	1,222	550	1,100	1.7	
2048	3,862	4,496	1,250	420	347	0.5	1,250	562	1,125	1.7	
2049	3,989	4,597	1,278	429	355	0.5	1,278	575	1,150	1.7	
2050	4,121	4,700	1,307	439	363	0.5	1,307	588	1,176	1.8	
2051		4,757	1,322	444	367	0.5	1,322	595	1,190	1.8	
2052		4,814	1,338	450	372	0.5	1,338	602	1,205	1.8	
2053		4,872	1,355	455	376	0.5	1,355	610	1,219	1.8	
2054		4,931	1,371	461	381	0.5	1,371	617	1,234	1.9	
2055		4,991	1,388	466	385	0.6	1,388	624	1,249	1.9	
2056		5,051	1,404	472	390	0.6	1,404	632	1,264	1.9	
2057		5,112	1,421	478	395	0.6	1,421	640	1,279	1.9	
2058		5,174	1,438	483	400	0.6	1,438	647	1,295	1.9	
2059		5,237	1,456	489	404	0.6	1,456	655	1,310	2.0	
2060		5,300	1,473	495	409	0.6	1,473	663	1,326	2.0	Future

APPENDIX G

EXISTING MUNICIPAL FACILITIES INVENTORY

Elk Ridge City Inventory of Existing Facilities

Well (Underground) Physical Capacity

Name	Annual Volume Capacity (ac-ft)	Flow Capacity (gpm)	Existing ?	Notes
Highline Well (DW)	1,392	1,200	Y	
Loafer Canyon Well (DW)	580	500	Y	
Dugway Well	46	40	Y	Not used and will be capped
Oaklane Well			Y	Pump used as a booster
Northeast Well			N	City is in the process of drilling exploratory wells according to their capital facilities plan. Northwest Well is scheduled to be constructed in the future.
Goosenest Shuler Well	64	55	Y	Owned by Goosenest Water Company and not included in Elk Ridge City inventory
Total	2,018	1,740		

Storage Physical Capacity

Name	Volume MG	Existing ?	
Upper Tank	0.5	Y	
Hillside Tank	0.5	Y	
Fairway Tank	1	Y	
Total	2		

Genola Town Inventory of Existing Facilities

Surface Diversion (River, Stream and Spring) Physical Capacity

Name	Annual Volume Capacity	Flow Capacity	Existing ?	Notes
	(ac-ft)	(gpm)		
Gravity Springs	161	100	Y	This is the same as Santaquin City's Gravity Springs. Flow hasn't fluctuated with dry/drought conditions. The flow capacity is about 900 gpm but Genola City uses only 100 gpm of the water and Santaquin keeps the remaining water. Genola purchases this water from Santaquin.
Total	161	100		

Well (Underground) Physical Capacity

Name	Annual Volume Capacity	Flow Capacity	Existing ?	Notes
	(ac-ft)	(gpm)		
Well 25012 (DW)	870	750	Y	Well was assumed to run at design capacity 21 hours a day for 300 days out of the year.
Total	870	750		

Storage Physical Capacity

Name	Volume	Existing ?	Notes
	MG		
Genola Tank	0.5	Y	Cummorah Drive and 1000 East, above ground steel tank.
Future Tank		N	
Total	0.5		

Goshen Town Inventory of Existing Facilities

Surface Diversion (River, Stream and Spring) Physical Capacity

Name	Annual Volume Capacity (ac-ft)	Flow Capacity (gpm)	Existing?	Notes
Ercanbrack Spring	323	200	Y	
Total	323	200		

Well (Underground) Physical Capacity

Name	Annual Volume Capacity (ac-ft)	Flow Capacity (gpm)	Existing ?	Notes
Goshen Town Well	353	250	Y	Assumes well run at design capacity 21 hours a day for 365 days a year.
Total	353	250		

Storage Physical Capacity

Name	Volume MG	Existing ?	Notes
Cemetery Tank and Baseball Park Tank	0.112	Y	
Goshen Tank 1	0.5	Y	
Goshen Tank 2	0.25	Y	
Total	0.862		

Goshen Valley Local District Inventory of Existing Facilities

Well (Underground) Physical Capacity

Name	Annual Volume Capacity (ac-ft)	Flow Capacity (gpm)	Existing ?	Notes
Eva #1	1,500	2,000	Y	Eva #1 is leased by Goshen Valley Local District and currently provides 100 ac-ft to Elberta Water Company. Assume well is run at design capacity 21 hours per day for 200 days a year.
Total	1,500	2,000		

Storage Physical Capacity

Name	Volume MG	Existing ?	Notes
Two Tanks	0.29	Y	These tanks are owned by Elberta Water Company.
Total	0.29		

Elk Ridge City Inventory of Existing Facilities

Well (Underground) Physical Capacity

Name	Annual Volume Capacity (ac-ft)	Flow Capacity (gpm)	Existing ?	Notes
Highline Well (DW)	1,392	1,200	Y	
Loafer Canyon Well (DW)	580	500	Y	
Dugway Well	46	40	Y	Not used and will be capped
Oaklane Well			Y	Pump used as a booster
Northeast Well			N	City is in the process of drilling exploratory wells according to their capital facilities plan. Northwest Well is scheduled to be constructed in the future.
Goosenest Shuler Well	64	55	Y	Owned by Goosenest Water Company and not included in Elk Ridge City inventory
Total	2,018	1,740		

Storage Physical Capacity

Name	Volume MG	Existing ?	
Upper Tank	0.5	Y	
Hillside Tank	0.5	Y	
Fairway Tank	1	Y	
Total	2		

Genola Town Inventory of Existing Facilities

Surface Diversion (River, Stream and Spring) Physical Capacity

Name	Annual Volume Capacity	Flow Capacity	Existing ?	Notes
	(ac-ft)	(gpm)		
Gravity Springs	161	100	Y	This is the same as Santaquin City's Gravity Springs. Flow hasn't fluctuated with dry/drought conditions. The flow capacity is about 900 gpm but Genola City uses only 100 gpm of the water and Santaquin keeps the remaining water. Genola purchases this water from Santaquin.
Total	161	100		

Well (Underground) Physical Capacity

Name	Annual Volume Capacity	Flow Capacity	Existing ?	Notes
	(ac-ft)	(gpm)		
Well 25012 (DW)	870	750	Y	Well was assumed to run at design capacity 21 hours a day for 300 days out of the year.
Total	870	750		

Storage Physical Capacity

Name	Volume	Existing ?	Notes
	MG		
Genola Tank	0.5	Y	Cummorah Drive and 1000 East, above ground steel tank.
Future Tank		N	
Total	0.5		

Goshen Town Inventory of Existing Facilities

Surface Diversion (River, Stream and Spring) Physical Capacity

Name	Annual Volume Capacity (ac-ft)	Flow Capacity (gpm)	Existing?	Notes
Ercanbrack Spring	323	200	Y	
Total	323	200		

Well (Underground) Physical Capacity

Name	Annual Volume Capacity (ac-ft)	Flow Capacity (gpm)	Existing ?	Notes
Goshen Town Well	353	250	Y	Assumes well run at design capacity 21 hours a day for 365 days a year.
Total	353	250		

Storage Physical Capacity

Name	Volume MG	Existing ?	Notes
Cemetery Tank and Baseball Park Tank	0.112	Y	
Goshen Tank 1	0.5	Y	
Goshen Tank 2	0.25	Y	
Total	0.862		

Goshen Valley Local District Inventory of Existing Facilities

Well (Underground) Physical Capacity

Name	Annual Volume Capacity (ac-ft)	Flow Capacity (gpm)	Existing ?	Notes
Eva #1	1,500	2,000	Y	Eva #1 is leased by Goshen Valley Local District and currently provides 100 ac-ft to Elberta Water Company. Assume well is run at design capacity 21 hours per day for 200 days a year.
Total	1,500	2,000		

Storage Physical Capacity

Name	Volume MG	Existing ?	Notes
Two Tanks	0.29	Y	These tanks are owned by Elberta Water Company.
Total	0.29		

Payson City Inventory of Existing Facilities

Surface Diversion (River, Stream and Spring) Physical Capacity

Name	Annual Volume Capacity (ac-ft)	Flow Capacity (gpm)	Existing?	Notes
Canyon Springs (5 upper, 2 lower)	1129	700	Y	
Peteetneet Creek	714	898	Y	
Dixon Spring	84	52	Y	Owned by Gooseneast Water Co. and not included.
Picayune Spring	16	10	Y	Owned by Spring Lake Water Works Co. and not included.
Total Outdoor Water	714	898		
Total Indoor Water	1129	700		

Well (Underground) Physical Capacity

Name	Annual Volume Capacity (ac-ft)	Flow Capacity (gpm)	Existing ?	Notes
Well No. 2 Fair Grounds (DW)	2,823	2,000	Y	Assume well run at design capacity 21 hours per day for 365 days a year.
Well No. 4 (PI but future redevelopment planned for DW)	1,044	1,500	Y	Assume well run at design capacity 21 hours per day for 180 days a year. Future redevelopment planned for this to be a well for drinking water.
Well No. 5 also known as Well No. 3(DW)	1,694	1,200	Y	Assume well run at design capacity 21 hours per day for 365 days a year.
Well No. 1 Park (PI)	1,044	1,500	Y	Assume well run at design capacity 21 hours per day for 180 days a year. Future redevelopment planned for this to be a well for drinking water.
Proposed Well 6 (DW)	1,694	1,200	N	Proposed
Total Outdoor Water	2,088	3,000		
Total Indoor Water	4,516	3,200		

Storage/Source Physical Capacity

Name	Annual Volume Capacity (ac-ft)	Flow Capacity (gpm)	Existing ?	Notes
Spring Lake (PI)	1909	2,400	Y	
Total	1909	2,400		

Storage Physical Capacity

Name	Volume MG	Existing ?	Notes
Tank 1 (DW)	2.5	Y	
Tank 2 (DW)	2.5	Y	
Tank 3 (DW)	0.6	Y	
Proposed Tank (DW)	2.0	N	The City is planning to build a 2.0 million gallon tank near Gladstan Golf Course within the next 5 to 10 years.

Storage Physical Capacity

Name	Volume MG	Existing ?	Notes
Big East Reservoir	115.9	Y	DWRi Dam Safety Database
Box Lake	21.0	Y	DWRi Dam Safety Database
McClellan Lake	9.2	Y	DWRi Dam Safety Database
Maple Lake	16.2	Y	DWRi Dam Safety Database
Red Lake	4.2	Y	Capacity listed on Payson City owned Water Right No. 51-6272 change application a16278
Dry Lake Reservoir	91.8	Y	Capacity listed on Payson City owned Water Right No. 51-6272 change application a16278
Pete Windward Reservoir	28.0	Y	DWRi Dam Safety Database
Upper Pond (PI)	10.7	Y	Capacity listed on Payson City owned Water Right No. 51-6272 change application a16278
Lower Pond (PI)	26.0	Y	Capacity listed on Payson City owned Water Right No. 51-6272 change application a16278
Total Outdoor Water	323.1		
Total Indoor Water	7.6		

Canal Turnout Physical Capacity

Name	Annual Volume Capacity (ac-ft)	Flow Capacity (gpm)	Existing ?	Notes
Lower Pond	6,427	8,080	Y	
Proposed Turnout 1			N	
Proposed Turnout 2			N	
Total	6,427	8,080		

Reuse Physical Capacity

Name	Annual Volume Capacity (ac-ft)	Flow Capacity (gpm)	Existing ?	Notes
Waste Water Treatment Plant	3,226	2,000	Y	The treatment plant delivers water to the power plant year-round and can be put into the pressurized irrigation system.
Total	3,226	2,000		

Salem City Inventory of Existing Facilities

Surface Diversion (River, Stream and Spring) Physical Capacity

Name	Annual Volume Capacity (ac-ft)	Flow Capacity (gpm)	Existing ?	Notes
Water Canyon Upper Spring	81	50	Y	Water Canyon Upper Spring produces 50-300 gpm depending on hydrologic conditions.
Water Canyon Springs Lower	323	200	Y	Water Canyon Upper Spring produces 200-1,000 gpm depending on hydrologic conditions.
Total	403	250		

Well (Underground) Physical Capacity

Name	Annual Volume Capacity (ac-ft)	Flow Capacity (gpm)	Existing ?	Notes
Maple Canyon Well No. 2 (DW)	1,482	1,050	Y	Maple Canyon Well is jointly owned with Woodland Hills City. Salem owns 60% and only their portion of the capacity is accounted for in this table. Assume design capacity 21 hours per day 365 days a year.
Storage Tank Well No.1 (DW)^	3,528	2,500	Y	Assume design capacity 21 hours per day 365 days a year.
Total	5,010	3,550		

Storage Physical Capacity

Name	Volume MG	Existing ?	Notes
Main Storage Tank 1 (DW)	0.5	Y	
Main Storage Tank 2 (DW)	0.3	Y	
Water Canyon Springs Tank (DW)	0.5	Y	
Maple Canyon Tank (DW)	0.45	Y	
Cemetery Storage Tank (DW)	0.75	Y	
Strawberry High Line Canal Ponds (two ponds - PI)	6.5	Y	
Total	9.0		

Canal Turnout Physical Capacity

Name	Annual Volume Capacity (ac-ft)	Flow Capacity (gpm)	Existing ?	Notes
Strawberry Highline Canal Company East Turnout	5,568	7,000	Y	
Strawberry Highline Canal Company West Turnout	5,568	7,000	Y	
Total	11,136	14,000		

Santaquin Inventory of Existing Facilities

Surface Diversion (River, Stream and Spring) Physical Capacity

Name	Annual Volume Capacity (ac-ft)	Flow Capacity (gpm)	Existing ?	Notes
Gravity Springs	1290	800	Y	Gravity Springs includes Springs #2-#5. Flow hasn't fluctuated with dry/drought conditions. The flow capacity is about 900 gpm but 100 gpm are transferred to Genola City
Spring #1	65	40	Y	Spring #1 is located near the Summit Creek Irrigation Company Diversion and greatly influenced by wet/dry years. Flow capacity range is 40-80 gpm.
Total	1355	840		

Well (Underground) Physical Capacity

Name	Annual Volume Capacity (ac-ft)	Flow Capacity (gpm)	Existing ?	Notes
Center Street Well (PI)	390	560	Y	Assume well runs at design capacity 21 hours per day 180 days per year.
Summit Ridge Well (DW)	3,045	2,625	Y	Assume well runs at design capacity 21 hours per day 365 days per year.
Cemetery #1 (DW)	765	660	Y	Assume well runs at design capacity 21 hours per day 365 days per year.
Eastside Well (PI)	223	320	Y	This well pumps heavy metals and is not currently in use. Assume well runs at design capacity 21 hours per day 180 days per year.
Proposed West Side Well 1	2,479	2,137	N	Proposed Well 1 and 2 are found in Santaquin City's CW Master Plan and Capital Facilities Plan, by J-U-B Engineers, Inc, November 2013.
Proposed West Side Well 2	2,479	2,137	N	
Total Indoor Water	3810	3285		
Total Well Outdoor Water	612	880		

Storage Physical Capacity

Name	Volume MG	Existing ?	Notes
Ahlin Pond (PI)	13.69	Y	
Tank Zone 12E	1.04	Y	
Tank Zone 10E	0.49	Y	
Tank Zone 11W	1.14	Y	
Tank Zone 11E	1.09	Y	
Total	17.45		

Canal Turnout Physical Capacity

Name	Annual Volume Capacity (ac-ft)	Flow Capacity (gpm)	Existing ?	Notes
Summit Creek Irrigation Company and Summit Creek Flows	800	1,006	Y	
Two new turnouts planned				
Total	800	1,006		

Recharge Physical Capacity

Name	Annual Volume Capacity (ac-ft)	Flow Capacity (gpm)	Existing ?	Notes
Recharge Basin 1			N	
Recharge Basin 2			N	
Recharge Basin 3			N	
Total	5,302			

Reuse Physical Capacity

Name	Annual Volume Capacity (ac-ft)	Flow Capacity (gpm)	Existing ?	Notes
Type 1 Water Storage Ponds (PI)			Y	Type 1 Water Storage Ponds (PI) holds 178 MG of water.
Total	N/A			

Spanish Fork City Inventory of Existing Facilities

Surface Diversion (River, Stream and Spring) Physical Capacity

Name	Annual Volume Capacity [^] (ac-ft)	Flow Capacity (gpm)	Existing ?	Notes
Crab Creek Springs	1450	900	Y	Crab Creek Springs and Cold Springs drain are assumed to have 100 percent utilization.
Cold Springs (Drain)	3,200	2,000	Y	
Cold Springs Pump Station	4,800	4,000		Cold Springs Pump Station and Malcolm Springs are assumed to have 75% utilization.
Malcolm Springs	2,800	2,300	Y	
Darger Springs	800	1,000	Y	Darger Springs is assumed to have 50% utilization since it is only run during the irrigation season.
Total Indoor	12,250	9,200		
Total Outdoor	800	1,000		

Well (Underground) Physical Capacity

Name	Annual Volume Capacity (ac-ft)	Flow Capacity (gpm)	Existing ?	Notes
Ensign-Bickford Well R1 (PI)	650	400	Y	All wells were assumed to have 50% utilization based on current and future planned use as sources for the pressurized irrigation system. The wells in bold type are approved as drinking water wells and one was included as indoor water.
Memorial Well (PI)	800	1,000	Y	
Canyon Elementary Well (DW or PI)	1,340	1,700	Y	
Cemetery Well #2 (PI)	800	1,000	Y	
Cemetery Well #1 (PI)	400	500	Y	
Fairgrounds Shop Well (PI)	1,050	1,300	Y	
Canyon Road Well (DW or PI)	800	1,000	Y	
Total Indoor	800	1,000		
Total Outdoor	5,040	5,900		

Storage Physical Capacity

Name	Volume MG	Existing ?	Notes
Sterling Hollow Tank 1	3	Y	
Sterling Hollow Tank 2	5	Y	
Malcomb Tank 1	1	Y	
Malcomb Tank 2	2	Y	
Oaks Tank 1	0.125	Y	
Oaks Tank 2	0.125	Y	
Spanish Oaks Reservoir (PI)	25.1	Y	
Golf Course Pond (PI)	7.8	Y	
Total	44.15		

Canal Turnout Physical Capacity

Name	Annual Volume Capacity (ac-ft)	Flow Capacity (gpm)	Existing ?	Notes
Powerhouse Road Diversion (rediversion)	3,800	4,000	Y	
2550 E Pump Station	400	500	Y	
Dry Creek Diversion	NA	NA	N	Future planned diversion
Weeping Rock Diversion	NA	NA	Y	
Golf Course Diversion (old) also referred to as East Bench Canal Diversion	NA	NA	Y	The capacity of these diversions is included in the rediversion at Power House Road.
Strawberry Power Canal Diversion	NA	NA	Y	
Total	4,200	4,500		

Woodland Hills Inventory of Existing Facilities

Surface Diversion (River, Stream and Spring) Physical Capacity

Name	Annual Volume Capacity	Flow Capacity	Existing ?	Notes
	(ac-ft)	(gpm)		
Shockey's Spring	N/A	N/A		Shockey's Spring was covered in a landslide several decades ago and has not been redeveloped.
Total	0	0		

Well (Underground) Physical Capacity

Name	Annual Volume Capacity	Flow Capacity	Existing ?	Notes
	(ac-ft)	(gpm)		
Maple Canyon Well (DW)	812	700	Y	Maple Canyon Well is jointly owned and operated with Salem City. The well has a pumping capacity of 1,750 gpm of which Woodland Hills owns 40% which is a flow of 700 gpm. Assume the well runs at design capacity 21 hours a day for 300 days out of the year.
Lower Well 1 (DW)	162	140	Y	Lower Well 1 and Lower Well 2 are located at the lower end of Woodland Hills City. They are not currently used due to the expense of pumping but could be used in an emergency.
Lower Well 2 (DW)	46	40	Y	
New Well	580	500	N	Not Included for total existing capacity
Total Existing Capacity	1,021	880		

Storage Physical Capacity

Name	Volume	Existing ?	Notes
	MG		
Maple Canyon Tank (DW)	0.3	Y	Maple Canyon Tank is jointly owned and operated with Salem City. The tank holds 0.75 MG of which Woodland Hills owns 40% which is .3 MG.
Total	0.3		

Payson City Inventory of Existing Facilities

Surface Diversion (River, Stream and Spring) Physical Capacity

Name	Annual Volume Capacity (ac-ft)	Flow Capacity (gpm)	Existing?	Notes
Canyon Springs (5 upper, 2 lower)	1129	700	Y	
Peteetneet Creek	714	898	Y	
Dixon Spring	84	52	Y	Owned by Gooseneck Water Co. and not included.
Picayune Spring	16	10	Y	Owned by Spring Lake Water Works Co. and not included.
Total Outdoor Water	714	898		
Total Indoor Water	1129	700		

Well (Underground) Physical Capacity

Name	Annual Volume Capacity (ac-ft)	Flow Capacity (gpm)	Existing ?	Notes
Well No. 2 Fair Grounds (DW)	2,823	2,000	Y	Assume well run at design capacity 21 hours per day for 365 days a year.
Well No. 4 (PI but future redevelopment planned for DW)	1,044	1,500	Y	Assume well run at design capacity 21 hours per day for 180 days a year. Future redevelopment planned for this to be a well for drinking water.
Well No. 5 also known as Well No. 3(DW)	1,694	1,200	Y	Assume well run at design capacity 21 hours per day for 365 days a year.
Well No. 1 Park (PI)	1,044	1,500	Y	Assume well run at design capacity 21 hours per day for 180 days a year. Future redevelopment planned for this to be a well for drinking water.
Proposed Well 6 (DW)	1,694	1,200	N	Proposed
Total Outdoor Water	2,088	3,000		
Total Indoor Water	4,516	3,200		

Storage/Source Physical Capacity

Name	Annual Volume Capacity (ac-ft)	Flow Capacity (gpm)	Existing ?	Notes
Spring Lake (PI)	1909	2,400	Y	
Total	1909	2,400		

Storage Physical Capacity

Name	Volume MG	Existing ?	Notes
Tank 1 (DW)	2.5	Y	
Tank 2 (DW)	2.5	Y	
Tank 3 (DW)	0.6	Y	
Proposed Tank (DW)	2.0	N	The City is planning to build a 2.0 million gallon tank near Gladstan Golf Course within the next 5 to 10 years.

Storage Physical Capacity

Name	Volume MG	Existing ?	Notes
Big East Reservoir	115.9	Y	DWRi Dam Safety Database
Box Lake	21.0	Y	DWRi Dam Safety Database
McClellan Lake	9.2	Y	DWRi Dam Safety Database
Maple Lake	16.2	Y	DWRi Dam Safety Database
Red Lake	4.2	Y	Capacity listed on Payson City owned Water Right No. 51-6272 change application a16278
Dry Lake Reservoir	91.8	Y	Capacity listed on Payson City owned Water Right No. 51-6272 change application a16278
Pete Windward Reservoir	28.0	Y	DWRi Dam Safety Database
Upper Pond (PI)	10.7	Y	Capacity listed on Payson City owned Water Right No. 51-6272 change application a16278
Lower Pond (PI)	26.0	Y	Capacity listed on Payson City owned Water Right No. 51-6272 change application a16278
Total Outdoor Water	323.1		
Total Indoor Water	7.6		

Canal Turnout Physical Capacity

Name	Annual Volume Capacity (ac-ft)	Flow Capacity (gpm)	Existing ?	Notes
Lower Pond	6,427	8,080	Y	
Proposed Turnout 1			N	
Proposed Turnout 2			N	
Total	6,427	8,080		

Reuse Physical Capacity

Name	Annual Volume Capacity (ac-ft)	Flow Capacity (gpm)	Existing ?	Notes
Waste Water Treatment Plant	3,226	2,000	Y	The treatment plant delivers water to the power plant year-round and can be put into the pressurized irrigation system.
Total	3,226	2,000		

Salem City Inventory of Existing Facilities

Surface Diversion (River, Stream and Spring) Physical Capacity

Name	Annual Volume Capacity (ac-ft)	Flow Capacity (gpm)	Existing ?	Notes
Water Canyon Upper Spring	81	50	Y	Water Canyon Upper Spring produces 50-300 gpm depending on hydrologic conditions.
Water Canyon Springs Lower	323	200	Y	Water Canyon Upper Spring produces 200-1,000 gpm depending on hydrologic conditions.
Total	403	250		

Well (Underground) Physical Capacity

Name	Annual Volume Capacity (ac-ft)	Flow Capacity (gpm)	Existing ?	Notes
Maple Canyon Well No. 2 (DW)	1,482	1,050	Y	Maple Canyon Well is jointly owned with Woodland Hills City. Salem owns 60% and only their portion of the capacity is accounted for in this table. Assume design capacity 21 hours per day 365 days a year.
Storage Tank Well No.1 (DW)^	3,528	2,500	Y	Assume design capacity 21 hours per day 365 days a year.
Total	5,010	3,550		

Storage Physical Capacity

Name	Volume MG	Existing ?	Notes
Main Storage Tank 1 (DW)	0.5	Y	
Main Storage Tank 2 (DW)	0.3	Y	
Water Canyon Springs Tank (DW)	0.5	Y	
Maple Canyon Tank (DW)	0.45	Y	
Cemetery Storage Tank (DW)	0.75	Y	
Strawberry High Line Canal Ponds (two ponds - PI)	6.5	Y	
Total	9.0		

Canal Turnout Physical Capacity

Name	Annual Volume Capacity (ac-ft)	Flow Capacity (gpm)	Existing ?	Notes
Strawberry Highline Canal Company East Turnout	5,568	7,000	Y	
Strawberry Highline Canal Company West Turnout	5,568	7,000	Y	
Total	11,136	14,000		

Santaquin Inventory of Existing Facilities

Surface Diversion (River, Stream and Spring) Physical Capacity

Name	Annual Volume Capacity (ac-ft)	Flow Capacity (gpm)	Existing ?	Notes
Gravity Springs	1290	800	Y	Gravity Springs includes Springs #2-#5. Flow hasn't fluctuated with dry/drought conditions. The flow capacity is about 900 gpm but 100 gpm are transferred to Genola City
Spring #1	64	80	Y	Spring #1 is located near the Summit Creek Irrigation Company Diversion. Spring #1 discharges into the Ahlin pond during the summer and is diverted into the creek bed during the winter. Flow capacity range is 80-100 gpm year round. Flows in the spring time can reach as much 150 gpm but the high flow is influenced by high water during the run off.
Total Indoor Spring Water	1290	800		
Total Outdoor Spring Water	64	80		

Well (Underground) Physical Capacity

Name	Annual Volume Capacity (ac-ft)	Flow Capacity (gpm)	Existing ?	Notes
Center Street Well (PI)	390	560	Y	Assume well runs at design capacity 21 hours per day 180 days per year.
Summit Ridge Well (DW)	3,045	2,625	Y	Assume well runs at design capacity 21 hours per day 300 days per year.
Cemetery #1 (DW)	765	660	Y	Assume well runs at design capacity 21 hours per day 300 days per year.
Eastside Well (PI)	223	320	Y	This well pumps heavy metals and is not currently in use. Assume well runs at design capacity 21 hours per day 180 days per year.
Proposed West Side Well 1	2,479	2,137	N	Proposed Well 1 and 2 are found in Santaquin City's CW Master Plan and Capital Facilities Plan, by J-U-B Engineers, Inc, November 2013.
Proposed West Side Well 2	2,479	2,137	N	
Total Indoor Water	3810	3285		
Total Well Outdoor Water	612	880		

Storage Physical Capacity

Name	Volume MG	Existing ?	Notes
Ahlin Pond (PI)	13.69	Y	
Tank Zone 12E	1.04	Y	
Tank Zone 10E	0.49	Y	
Tank Zone 11W	1.14	Y	
Tank Zone 11E	1.09	Y	
Total	17.45		

Canal Turnout Physical Capacity

Name	Annual Volume Capacity (ac-ft)	Flow Capacity (gpm)	Existing ?	Notes
Summit Creek Irrigation Company and Summit Creek Flows	800	1,006	Y	
Two new turnouts planned				
Total	800	1,006		

Recharge Physical Capacity

Name	Annual Volume Capacity (ac-ft)	Flow Capacity (gpm)	Existing ?	Notes
Recharge Basin 1			N	
Recharge Basin 2			N	
Recharge Basin 3			N	
Total	5,302			

Reuse Physical Capacity

Name	Annual Volume Capacity (ac-ft)	Flow Capacity (gpm)	Existing ?	Notes
Type 1 Water Storage Ponds (PI)			Y	Type 1 Water Storage Ponds (PI) holds 178 MG of water.
Total	N/A			

Spanish Fork City Inventory of Existing Facilities

Surface Diversion (River, Stream and Spring) Physical Capacity

Name	Annual Volume Capacity [^] (ac-ft)	Flow Capacity (gpm)	Existing ?	Notes
Crab Creek Springs	1450	900	Y	Crab Creek Springs and Cold Springs drain are assumed to have 100 percent utilization.
Cold Springs (Drain)	3,200	2,000	Y	
Cold Springs Pump Station	4,800	4,000		Cold Springs Pump Station and Malcolm Springs are assumed to have 75% utilization.
Malcolm Springs	2,800	2,300	Y	
Darger Springs	800	1,000	Y	Darger Springs is assumed to have 50% utilization since it is only run during the irrigation season.
Total Indoor	12,250	9,200		
Total Outdoor	800	1,000		

Well (Underground) Physical Capacity

Name	Annual Volume Capacity (ac-ft)	Flow Capacity (gpm)	Existing ?	Notes
Ensign-Bickford Well R1 (PI)	650	400	Y	All wells were assumed to have 50% utilization based on current and future planned use as sources for the pressurized irrigation system. The wells in bold type are approved as drinking water wells and one was included as indoor water.
Memorial Well (PI)	800	1,000	Y	
Canyon Elementary Well (DW or PI)	1,340	1,700	Y	
Cemetery Well #2 (PI)	800	1,000	Y	
Cemetery Well #1 (PI)	400	500	Y	
Fairgrounds Shop Well (PI)	1,050	1,300	Y	
Canyon Road Well (DW or PI)	800	1,000	Y	
Total Indoor	800	1,000		
Total Outdoor	5,040	5,900		

Storage Physical Capacity

Name	Volume MG	Existing ?	Notes
Sterling Hollow Tank 1	3	Y	
Sterling Hollow Tank 2	5	Y	
Malcomb Tank 1	1	Y	
Malcomb Tank 2	2	Y	
Oaks Tank 1	0.125	Y	
Oaks Tank 2	0.125	Y	
Spanish Oaks Reservoir (PI)	25.1	Y	
Golf Course Pond (PI)	7.8	Y	
Total	44.15		

Canal Turnout Physical Capacity

Name	Annual Volume Capacity (ac-ft)	Flow Capacity (gpm)	Existing ?	Notes
Powerhouse Road Diversion (rediversion)	3,800	4,000	Y	
2550 E Pump Station	400	500	Y	
Dry Creek Diversion	NA	NA	N	Future planned diversion
Weeping Rock Diversion	NA	NA	Y	
Golf Course Diversion (old) also referred to as East Bench Canal Diversion	NA	NA	Y	The capacity of these diversions is included in the rediversion at Power House Road.
Strawberry Power Canal Diversion	NA	NA	Y	
Total	4,200	4,500		

Woodland Hills Inventory of Existing Facilities

Surface Diversion (River, Stream and Spring) Physical Capacity

Name	Annual Volume Capacity	Flow Capacity	Existing ?	Notes
	(ac-ft)	(gpm)		
Shockey's Spring	N/A	N/A		Shockey's Spring was covered in a landslide several decades ago and has not been redeveloped.
Total	0	0		

Well (Underground) Physical Capacity

Name	Annual Volume Capacity	Flow Capacity	Existing ?	Notes
	(ac-ft)	(gpm)		
Maple Canyon Well (DW)	812	700	Y	Maple Canyon Well is jointly owned and operated with Salem City. The well has a pumping capacity of 1,750 gpm of which Woodland Hills owns 40% which is a flow of 700 gpm. Assume the well runs at design capacity 21 hours a day for 300 days out of the year.
Lower Well 1 (DW)	162	140	Y	Lower Well 1 and Lower Well 2 are located at the lower end of Woodland Hills City. They are not currently used due to the expense of pumping but could be used in an emergency.
Lower Well 2 (DW)	46	40	Y	
New Well	580	500	N	Not Included for total existing capacity
Total Existing Capacity	1,021	880		

Storage Physical Capacity

Name	Volume	Existing ?	Notes
	MG		
Maple Canyon Tank (DW)	0.3	Y	Maple Canyon Tank is jointly owned and operated with Salem City. The tank holds 0.75 MG of which Woodland Hills owns 40% which is .3 MG.
Total	0.3		

APPENDIX H

WATER RIGHTS INVENTORY

Elk Ridge MNWA Subarea Water Rights

Ground Water Rights

Water Right		CFS	ACFT	Type	Name
Number	Change #				
51-4565		0.015	1.32	Ground	Payson Properties, LLC
51-4669		0.045	9	Ground	Vernile Gasser
51-6602			1.56	Ground	Randall K and Debra A. Cloward
51-2884		0.062	4	Ground	Payson Properties, LLC
51-2885		0.031	1.59	Ground	Donald R. Poole
51-2961		0.156	8	Ground	Payson Properties, LLC
51-6074			0.98	Ground	Pieter Remkes
51-7602			0.9	Ground	Robbins Family Exemption Trust
51-7178			3.1	Ground	Robbins Family Exemption Trust
Private Elk Ridge Subarea					
Ground Water Rights		Subtotal	30.45	ac-ft	

51-1138	a31745		136.5	Ground	Elk Ridge City
51-1356	a18750		10.76	Ground	Elk Ridge City
51-1720	a19186		15	Ground	Elk Ridge City
51-2247	a18569		2.29	Ground	Elk Ridge City
51-2717	a18569		0.54	Ground	Elk Ridge City
51-4885	a31745		119.88	Ground	Elk Ridge City
51-5203	a18569		3.88	Ground	Elk Ridge City
51-6662	a29300		17	Ground	Elk Ridge City
51-6753	a18536		40	Ground	Elk Ridge City
51-6783	a18834		25.6	Ground	Elk Ridge City
51-6854	a19184		14	Ground	Elk Ridge City
51-6855	a19185		25.6	Ground	Elk Ridge City
51-6887	a19527		5	Ground	Elk Ridge City
51-6889	a19524		80	Ground	Elk Ridge City
51-6900	a19583		25.64	Ground	Elk Ridge City
51-6943	a29301		13	Ground	Elk Ridge City
51-6950	a20080		1	Ground	Elk Ridge City
51-6972	a20174		15	Ground	Elk Ridge City
51-6973	a20176		10	Ground	Elk Ridge City
51-6974	a20179		4	Ground	Elk Ridge City
51-7112	a21057		2	Ground	Elk Ridge City
51-7271	a23014		103.74	Ground	Elk Ridge City
51-7281	a23142		10.4	Ground	Elk Ridge City
51-7755	a31745		237.6	Ground	Elk Ridge City
51-1912	a32526		80	Ground	Elk Ridge City
51-8343	a34850		19	Ground	Elk Ridge City
51-8564	a40260		21.9	Ground	Elk Ridge City
51-8593	a40263		108.9	Ground	Elk Ridge City
55-12340	a34123		129.93	Ground	Elk Ridge City
59-5886	a39018		138.796	Ground	Elk Ridge City
Municipal Elk Ridge Subarea					
Ground Water Rights		Subtotal	1,417	ac-ft	

Irrigation Company Elkridge					
Subarea Ground Water Rights					
& Shares		Subtotal	119	ac-ft	Ground
Loafer Water Users Association					

Total Elk Ridge Subarea Ground Water Rights			1,567	ac-ft	
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Surface Water Rights

Water Right		CFS	ACFT	Type	Name
Number					
Private Elk Ridge Subarea					
Surface Water Rights		Subtotal	0	ac-ft	
Municipal Elk Ridge Subarea					
Surface Water Rights		Subtotal	0	ac-ft	Surface
Irrigation Company Elk Ridge					
Subarea Surface Water Rights					
& Shares		Subtotal	38	ac-ft	Surface
Loafer Water Users Association					
Total Elk Ridge Subarea Surface Water Rights			38	ac-ft	

TOTAL ELK RIDGE SUBAREA WATER RIGHTS			1,605	ac-ft	
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Genola MNWA Subarea Water Rights

Ground Water Rights

Water Right						
Number	Change #	CFS	ACFT	Type	Name	
53-1286		0.015	1.37	Ground	MCBC/L Family Revocable Trust	
53-255		0.5	46.78	Ground	Asa L. Curtis	
53-684		2	190	Ground	Salem-Genola Property Management	
53-271		0.022	4.2	Ground	Isabell Draper	
53-283		0.014	10.84	Ground	Don & Shirley Oberg	
53-43		0.71	51.4	Ground	Oldcastle MMG Inc.	
53-61		0.124	89.8	Ground	Oldcastle MMG Inc.	
53-962		0.015	2.2	Ground	Ken Thomas	
53-254		0.5	15.6	Ground	Grant Larson	
53-256		0.5	15.6	Ground	Grant Larson	
53-257		0.5	15.6	Ground	Grant Larson	
53-277		0.022	15.85	Ground	Preston Delos & Cleo E. Carter	
53-922		0.03	4.39	Ground	Marvin T. and Joan L. B. Oberg	
53-1085		0.015	1.73	Ground	Ron C. & Sherrie Q. Skow	
53-398		0.089	14.1	Ground	G. H. Chaffin Investment Company	
53-609		0.015	1.45	Ground	Cecilia J. Beachler Revocable Living Trust	
51-6794			118.56	Ground	McMullin Orchards Inc.	
53-645		0.015	1.73	Ground	Nathan J. Childs	
53-967		0.153	1.4	Ground	Elmer W. Belka	

Private Genola Subarea

Ground Water Rights	Subtotal		602.6	ac-ft		
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53-1081*		0.2	49.38	Ground	Genola Town	
53-1082*		3.826	944.62	Ground	Genola Town	

*Unevaluated volume based on maximum Genola well capacity

Municipal Genola Subarea

Ground Water Rights	Subtotal		994	ac-ft		
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Irrigation Company Genola

Subarea Ground Water Rights & Shares	Subtotal		660	ac-ft	Strawberry High Line Canal Company	
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Total Genola Subarea Ground Water Rights			2,257	ac-ft		
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Surface Water Rights

Water Right						
Number	Change #	CFS	ACFT	Type	Name	
53-36			1000	Surface	Corp of Presiding Bishop of the LDS Church	
53-923		0.015	1.85	Surface	Shirl L. Ekins	

Private Genola Subarea

Surface Water Rights	Subtotal		1002	ac-ft		
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Municipal Genola Subarea	Subtotal		0	ac-ft		
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Irrigation Company Genola

Subarea Surface Water Rights & Shares			1,506	ac-ft	Surface	East Warm Creek Irrigation and Canal Company, Strawberry High Line Canal Company
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Total Genola Subarea Surface Water Rights			2,508	ac-ft		
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TOTAL GENOLA SUBAREA WATER RIGHTS 4,764 ac-ft

Goshen MNWA Subarea Water Rights

Ground Water Rights						
Water Right						
Number	Change #	CFS	ACFT	Type	Name	
53-138		0.011	3.25	Ground	Douglas A. Nielson	
53-143 ¹				Ground	Corp of Presiding Bishop of the LDS Church	
53-356		0.022	8.4	Ground	Kent and Finch and Carl Dahl	
53-813		0.003	0.62	Ground	Samuel James and Helen L. White	
53-985			1.09	Ground	Gilbert C. and Julie McLachlan	
53-242		0.009	1.12	Ground	Joseph K. Stansfield Trust	
53-259		0.002	1.07	Ground	Samuel James and Helen L. White	
53-318		0.005	0.62	Ground	Samuel James and Helen L. White	
53-345		0.004	0.28	Ground	Alex White	
53-361		0.055	2.8	Ground	William White	
53-358		0.011	3.3	Ground	Jasperson Cattle, L.C.	
53-359		0.011	5.13	Ground	Jasperson Cattle, L.C.	
53-360		0.045	5.13	Ground	Jasperson Cattle, L.C.	
53-876		0.015	3	Ground	Duane Green	
a39045			60.02	Ground	East Jordan Irrigation Company	
53-296		0.033	3.72	Ground	J L.C.	
51-1371		0.015	3	Ground	Kecia Lee West	
53-1371			3	Ground	Jake A. Sorensen	
53-163		0.015	1.65	Ground	Cole E. and Trina C. Palfreyman	
53-81		0.015	4.05	Ground	J L.C.	
a39636			38.53	Ground	North Jordan Irrigation Company	
53-691		0.015	1.42	Ground	Jasperson Cattle, L.C.	
53-892		0.007	3	Ground	Jasperson Cattle, L.C.	
53-1191		0.015	1.82	Ground	William H. White	
53-1322		0.015	2.43	Ground	Steve and Karen Young	
53-585		0.279	6.88	Ground	Boswell Land & Livestock	
53-675		0.015	0.33	Ground	Gordon V. Steck	
a41413			9	Ground	Justin C. Goetz	
53-117		0.015	1.49	Ground	Sara Ann Cook McKowen	
53-1500			1.16	Ground	Wayne P. and Andrea S. Kobianes	
53-1501			0.99	Ground	Sam N. and Melissa I. Bratt	
53-362			2.03	Ground	Robert D. Burt	
53-879		0.015	5.6	Ground	Howard Morgan	
53-1397			2	Ground	Jessie T. and Jenna Larsen	
53-1502			9	Ground	Jared Riley	
53-1523			8.21	Ground	Daryl Timmons	
53-1537			1	Ground	Daryl Timmons	
53-1722			2	Ground	Larry W. Reaves	
a30100			11.59	Ground	Dallas S. and Cari B. Anderson	
a33078			9.44	Ground	David T. and Kristie E. Biesenbach	
51-6888			9	Ground	Forrest & Joan Darling	
51-7245			1	Ground	Rhea R. & Kathleen Glenn	
53-862			500.86	Ground	Ken Lynn Bearnson	
51-2724			42	Ground	Currant Creek Farms, L.L.C.	
51-7387			4	Ground	Currant Creek Farms, L.L.C.	
53-1391			103.58	Ground	East Jordan Irrigation Company	
53-1434			0.17	Ground	Earl L. Christensen	
53-1507			116.16	Ground	East Jordan Irrigation Company	
53-1513			0.17	Ground	Earl L. Christensen	
53-1711			0.38	Ground	Earl L. Christensen	
55-12			13.24	Ground	Currant Creek Farms, L.L.C.	
55-7			32.4	Ground	Currant Creek Farms, L.L.C.	
a33103			387.2	Ground	East Jordan Irrigation Company	
Private Goshen Subarea						
Ground Water Rights		Subtotal	1,439.33	ac-ft		
53-1488	a37939		169.2	Ground	Goshen Town	
Municipal Goshen Subarea						
Ground Water Rights		Subtotal	169.20	ac-ft		
Irrigation Company Goshen						
Subarea Ground Water						
Rights & Shares		Subtotal	438	ac-ft	Goshen Irrigation and Canal Company	
Total Goshen Subarea Ground Water Rights			2,047	ac-ft		

¹The point of diversion for Water Right 53-143 is mapped in the Goshen Subarea in the DWRI database. The owner has stated, however, that the point of diversion is within the Goshen Valley/Elberta Subarea.

Surface Water Rights

Water Right					
Number	Change #	CFS	ACFT		Name
53-942		0.25	3.36		William R. and Donna Kay Jaspersen
53-955			1.4		Carma Burraston and Kurt F. Burraston Bell
53-961		0.004	2.8		Carma Burraston Bell
Private Goshen Subarea					
Surface Water Rights		Subtotal	8	ac-ft	
53-986*		0.5	134	Municipal	Goshen Town
53-993*		1	269	Municipal	Goshen Town
*Ercanbrack Spring Water Rights based on average capacity of the spring					
Municipal Goshen Subarea					
Surface Water Rights		Subtotal	403	ac-ft	
Irrigation Company Goshen					
Subarea Surface Water					Goshen Irrigation and Canal Company, Warm Springs Irrigation and
Rights & Shares			4,420	ac-ft	Surface Power Company
Total Goshen Subarea Surface Water Rights			4,831	ac-ft	
TOTAL GOSHEN SUBAREA WATER RIGHTS			6,877	ac-ft	

Goshen Valley/Elberta MNWA Subarea Water Rights

Ground Water Rights

Water Right Number	Change #	CFS	ACFT	Type	Name
53-1277	a19390	6	1918.4		L & V Properties L.L.C.
53-1454			510.15		L & V Properties L.L.C.
53-379		0.045	14.17		Millerberg Enterprises
53-49		0.045	11.2		J. H. Allen
53-1375	a19561		691.12		Farnsworth
53-1278		0.015	2.85		Kaitlin Brady
53-1486			1.45		L & V Properties L.L.C.
53-1596			10.87		Victor C. Ortiz
53-390		0.015	2.15		Robert N. Wood
53-697	a14333	0.015	1.59		NRV 20, Elbert, LLC
53-163		0.015	1.65		Cole E. and Trina C. Palfreyman
53-889		0.015	0.57		Kris S. Morgan
53-890		0.015	2.71		Kit B. Morgan
53-891		0.015	2.26		Harold and Beverly Morgan
53-105		0.015	0.28		Gaylord P. and Colleen H. Patten
57-10393	a39477		614.68		Saratoga Quarter Horses, LLC
59-5892	a39896		630		Saratoga Quarter Horses, LLC
59-5902	a40444		74.3		Saratoga Quarter Horses, LLC
53-89		0.015	7.89		Scott McLachlan
53-547		0.067	2.55		Scott McLachlan
53-5885	a38932		425.18		Scott McLachlan
53-1017		0.015	1.59		Orville H. & Linda C. Gerow
53-119		0.015	8.65		Lloyd Taylor Penrod
53-1404	a40288		3		Micheal Muse & Christine Frampton Hendricks
53-1024	a41121		3		Rigtrup Hatchery
53-1379	a19743		1.39		Shane S. and Kimberly Schulthies
53-1383	a19972		0.64		The Schulthies Family Trust
53-1490	a25046		1.15		Rigtrup Hatchery
53-1491	a25046		3		Rigtrup Hatchery
53-1492	a25046		3		Rigtrup Hatchery
53-1552	a39799		10.52		Rigtrup Hatchery
53-1578	a25047		1.87		Carolyn M. Rigtrup
53-1721	a34912		1.91		Jim A. Rigtrup Family Trust
53-673			1.73		Rigtrup Hatchery
57-10494	a41905		200		Rigtrup Hatchery
53-674		0.015	2.71		Barber Family Trust
53-855		0.015	2.88		Barber Family Trust
53-1732	a41023		79.38		Barber Family Trust
53-647		0.015	2.71		Kelly James and Brenda Larsen Prestwich
53-1323			1.42		Noel and Carri L. Vallejo
53-1370			2.99		Allen Trust
53-1547			1		KBW Properties LTD
53-1509			0.45		Harold Neal and Paula K. Jewett
53-1686	a36127				
53-1695	a37398		25		Raina H. and John T. Budd
57-10417	a37940		48.4		Bateman Land and Livestock
57-10418	a37950		387.2		Bateman Land and Livestock
57-10422	a38214		358.16		Bateman Land and Livestock
53-58	a41904		4939.69		Bateman Land and Livestock
53-388	a41904				Bateman Land and Livestock
53-392	a41904				Bateman Land and Livestock
53-545	a41904				Bateman Land and Livestock
53-573	a41904				Bateman Land and Livestock
53-574	a41904				Bateman Land and Livestock
53-640	a41904				Bateman Land and Livestock
53-641	a41904				Bateman Land and Livestock
53-642	a41904				Bateman Land and Livestock
53-670	a41904				Bateman Land and Livestock
53-864	a41904				Bateman Land and Livestock
53-903	a41904				Bateman Land and Livestock
53-991	a41904				Bateman Land and Livestock
53-1022	a41904				Bateman Land and Livestock
59-3517	t41468		3750		Bateman Land and Livestock
53-107	a13798		352		Corp. of the Presiding Bishop of the LDS Church
53-123			1385.26		Corp. of the Presiding Bishop of the LDS Church
53-125	a37253		1.9548		Corp. of the Presiding Bishop of the LDS Church

53-128	a41216		675		Corp. of the Presiding Bishop of the LDS Church
53-129	a13798		368		Corp. of the Presiding Bishop of the LDS Church
53-135	a13798		7080		Corp. of the Presiding Bishop of the LDS Church
53-147			989.47		Corp. of the Presiding Bishop of the LDS Church
53-148	a4258		2560		Corp. of the Presiding Bishop of the LDS Church
53-149	a4363		45.4		Corp. of the Presiding Bishop of the LDS Church
53-150	a6380		2800		Corp. of the Presiding Bishop of the LDS Church
53-153 ¹	a4264		816.26		Corp. of the Presiding Bishop of the LDS Church
53-154	a13798		1484		Corp. of the Presiding Bishop of the LDS Church
53-161			1473.12		Corp. of the Presiding Bishop of the LDS Church
53-391			1.8		Corp. of the Presiding Bishop of the LDS Church
53-396			600.8		Corp. of the Presiding Bishop of the LDS Church
53-610	a37254		7.15		Corp. of the Presiding Bishop of the LDS Church
53-635	a37254		5.69		Corp. of the Presiding Bishop of the LDS Church
53-680			1.8		Farmland Reserve, Inc.
53-1415	a37254		7.53		Corp. of the Presiding Bishop of the LDS Church
53-1416	a37254		3.22		Corp. of the Presiding Bishop of the LDS Church
53-1417	a37254		5.38		Corp. of the Presiding Bishop of the LDS Church
53-1418	a37254		7.53		Corp. of the Presiding Bishop of the LDS Church
53-1419	a37254		8.09		Corp. of the Presiding Bishop of the LDS Church
53-1420	a37254		8.6		Corp. of the Presiding Bishop of the LDS Church
53-1421	a37254		7.53		Corp. of the Presiding Bishop of the LDS Church
53-1422	a37254		7.53		Corp. of the Presiding Bishop of the LDS Church
53-1423	a37254, a39876		2.38		Corp. of the Presiding Bishop of the LDS Church
53-1424	a37254		33.76		Corp. of the Presiding Bishop of the LDS Church
53-1431		3	800		Corp. of the Presiding Bishop of the LDS Church
53-1514	a30236		1160		Corp. of the Presiding Bishop of the LDS Church
53-1563	a29331		485.875		Corp. of the Presiding Bishop of the LDS Church
53-1571	a30265		520		Corp. of the Presiding Bishop of the LDS Church
53-1572			24		Corp. of the Presiding Bishop of the LDS Church
53-1735	a42349		305.6		Corp. of the Presiding Bishop of the LDS Church
53-1750			129		Corp. of the Presiding Bishop of the LDS Church
53-1751	a42448		58.68		Corp. of the Presiding Bishop of the LDS Church and Farmland Reserve, Inc.
53-1752	a42448				Corp. of the Presiding Bishop of the LDS Church and Farmland Reserve, Inc.
53-78	a39876	0.015	34.746		Corp. of the Presiding Bishop of the LDS Church
53-872	a39876	0.015			Corp. of the Presiding Bishop of the LDS Church
53-886	a39876	0.015			Corp. of the Presiding Bishop of the LDS Church
53-887	a39876	0.015			Corp. of the Presiding Bishop of the LDS Church
53-909	a39876	0.015			Corp. of the Presiding Bishop of the LDS Church
53-91	a39876	0.25			Corp. of the Presiding Bishop of the LDS Church
53-987	a39876	0.015			Corp. of the Presiding Bishop of the LDS Church
53-287	a39876	0.033			Corp. of the Presiding Bishop of the LDS Church
53-344	a39876	0.56			Corp. of the Presiding Bishop of the LDS Church
53-656	a39876	0.015			Corp. of the Presiding Bishop of the LDS Church
57-23 ²	a39429		745.59		William White Consulting, Zircon L.L.C.
59-5897 ⁴	a39966		982.26		William White Consulting, Zircon L.L.C., Utah and Salt Lake Canal Co.
Private Goshen Valley/Elberta Subarea		Subtotal	35,828.45	ac-ft	

53-1535 ³	a39221		1236.62		Corp. of the Presiding Bishop of the LDS Church and Utah Lake Distributing Co.
53-1618 ³	a38215		895.968		Corp. of the Presiding Bishop of the LDS Church and Utah Lake Distributing Co.
53-1605 ³	a38216		591.68		Corp. of the Presiding Bishop of the LDS Church and North Jordan Irrigation Co.
Municipal Goshen Valley/Elberta Subarea		Subtotal	2,724.27	ac-ft	

¹The point of diversion for Water Right 53-143 is mapped in the Goshen Subarea in the DWRI database but, according to the owner, the point of diversion is within the Goshen Valley/Elberta Subarea.

²The water available under this change application has been changed to municipal use and will be utilized by the Goshen Valley Local District to provide for long-term future municipal purposes. Irrigation water will no longer be delivered to the historic place of use.

³The water available under this change application has been changed to municipal, and industrial use in addition to irrigation use and is leased to the Goshen Valley Local District to provide for long-term future municipal or industrial purposes. While development is proceeding the water will be used for agricultural purposes.

Irrigation Company Goshen Valley/Elberta Subarea Ground Water Rights & Shares		Subtotal	372.00	ac-ft	Ground	Current Creek Irrigation Company, Elberta Water Company, Goshen Irrigation and Canal Company
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Total Goshen Valley/Elberta Subarea Ground Water Rights **38,925** **ac-ft**

Surface Water Rights

Water Right Number	Change #	CFS	ACFT	Name
53-1099			11.34	Herbert H. Halliday Trustee
53-1098				Herbert H. Halliday Trustee
53-1097				Herbert H. Halliday Trustee

53-1096					Herbert H. Halliday Trustee
53-1100					Herbert H. Halliday Trustee
53-589		1	24.92		Goshen Cattle Growers
53-826		1	4.368		Dan Ray & Delreece & Ray Kay
53-969					Dan Ray & Delreece & Ray Kay
53-1128					Dan Ray & Delreece & Ray Kay
53-1129					Dan Ray & Delreece & Ray Kay
53-1109			39.06		Roy and Sons Inc. Okelberry
53-1108					Roy and Sons Inc. Okelberry
53-1107					Roy and Sons Inc. Okelberry
53-972					Roy and Sons Inc. Okelberry
53-687					Okelberry Tintic, LLC
53-686		0.045			Roy and Sons Inc. Okelberry
53-682					Roy and Sons Inc. Okelberry
53-943		0.5	8.4		Dan Ray & Del Reece Kay
53-944		0.5	1.4		Jay Lewis Woodard Family Trust
53-946			3.5		Keith Drissell
53-942		0.25	3.36		William R. and Donna Kay Jaspersen
53-940			15.41		Corp. of the Presiding Bishop of the LDS Church
53-947					Corp. of the Presiding Bishop of the LDS Church
53-948					Corp. of the Presiding Bishop of the LDS Church
53-949					Corp. of the Presiding Bishop of the LDS Church
53-950					Corp. of the Presiding Bishop of the LDS Church
53-951					Corp. of the Presiding Bishop of the LDS Church
53-952					Corp. of the Presiding Bishop of the LDS Church
53-1087					Corp. of the Presiding Bishop of the LDS Church
53-1088					Corp. of the Presiding Bishop of the LDS Church
53-941			4.2		Kenneth and Darthela Cook
53-1090	a41159	0.5	116.82		Triangle Ranch Inc.
53-1091		0.25	73.26		Tim B. Hannifin
53-1092		0.063	50.45		E. A. Wolf
53-634		0.25	68.29		E. A. Wolf
53-954		0.33	49.1		E. A. Wolf
53-957	a41159	1.42	115.92		Triangle Ranch Inc.
53-945	a41159				
53-1090	a41159	0.5			
53-959		0.552	72.81		Tim B. Hannifin
53-1601	a31596		2		KBW Properties LTD
53-22		0.017	1.88		KBW Properties LTD
53-818		0.007	2.8		M. M. Carlson
53-6		0.007	4.9		George E. Kay
53-970		0.004	0.7		Burton Todd Cook
53-971		0.022	0.7		Burton Todd Cook
53-686		0.045	6.01		Roy Okelberry and Sons, Inc.
53-687		0.25	6.01		Roy Okelberry and Sons, Inc.
53-16		0.56	80		Elberta Enterprises
53-21		1	80		Elberta Enterprises
53-593		1	1.73		Joseph K. Stansfield Trust
53-968		1	1.4		Kenneth P. and Henry B. Cook
53-594		1	1.73		R. Reid Nelson
53-907		0.111	68.72		Ray Okelberry
53-1243			3.32		Harlan C. Ashby
	a38373		271.04		Bateman Land and Livestock
	a38534		285.56		Bateman Land and Livestock
53-36			1000		Corp. of the Presiding Bishop of the LDS Church
53-953	a32371		297.41		Corp. of the Presiding Bishop of the LDS Church
53-1093	a32371				Corp. of the Presiding Bishop of the LDS Church
53-1428	a8978		1734.48		Corp. of the Presiding Bishop of the LDS Church
53-1429	a8978				Corp. of the Presiding Bishop of the LDS Church
53-1430	a8978				Corp. of the Presiding Bishop of the LDS Church
53-1406	a23104		2642.9		Corp. of the Presiding Bishop of the LDS Church
53-1440	a23105		1294.7		Corp. of the Presiding Bishop of the LDS Church
53-1439	a24879		1840.59		Corp. of the Presiding Bishop of the LDS Church
53-1605	a38216		591.68		Corp. of the Presiding Bishop of the LDS Church
53-1535	a39221		1236.62		Corp. of the Presiding Bishop of the LDS Church
Private Goshen Valley/Elberta Subarea		Subtotal	12,108	ac-ft	
Irrigation Company Goshen Valley/Elberta					
Subarea Surface Water Rights & Shares			8,915	ac-ft	Surface Current Creek Irrigation Company, Goshen Irrigation and Canal Company
Total Goshen Valley/Elberta Subarea Surface Water Rights			21,023	ac-ft	
TOTAL Goshen Valley/Elberta SUBAREA WATER RIGHTS			59,948	ac-ft	

Benjamin/Lakeshore MNWA Subarea Water Rights

Ground Water Rights

Water Right Number	Change #	CFS	ACFT	Type	Name
a22674a			0.62	Ground	Bayview Subdivision Plat "A" HOA
a22674b			0.62	Ground	Bayview Subdivision Plat "A" HOA
a22674c			0.62	Ground	Bayview Subdivision Plat "A" HOA
a22674d			0.62	Ground	Bayview Subdivision Plat "A" HOA
a22674e			0.62	Ground	Bayview Subdivision Plat "A" HOA
a22674f			0.62	Ground	Bayview Subdivision Plat "A" HOA
a22674g			0.62	Ground	Bayview Subdivision Plat "A" HOA
a22674h			0.62	Ground	Bayview Subdivision Plat "A" HOA
a22674i			0.62	Ground	Bayview Subdivision Plat "A" HOA
a22674j			0.62	Ground	Bayview Subdivision Plat "A" HOA
a22674k			0.62	Ground	Bayview Subdivision Plat "A" HOA
a22674l			0.62	Ground	Bayview Subdivision Plat "A" HOA
a22674m			0.62	Ground	Bayview Subdivision Plat "A" HOA
a22674n			0.62	Ground	Bayview Subdivision Plat "A" HOA
a22674o			0.62	Ground	Bayview Subdivision Plat "A" HOA
a22674p			0.62	Ground	Bayview Subdivision Plat "A" HOA
a66744q			0.62	Ground	Bayview Subdivision Plat "A" HOA
a17698			74.4	Ground	JLC
a39428			20.33	Ground	East Jordan Irrigation Company
a19454			187.24	Ground	East Jordan Irrigation Company
a39735			181.33	Ground	Welby Jacob Water Users Company
a41722			37.04	Ground	JLC
a41722a			9.17	Ground	JLC
a41722b			9.17	Ground	JLC
a41722c			9.95	Ground	JLC
a41722d			9.95	Ground	JLC
a41722e			9.17	Ground	JLC
a41722f			9.17	Ground	JLC
a41722g			9.17	Ground	JLC
53-567		0.015	1.25	Ground	South Shore Farms
51-1079		0.015	6.71	Ground	Al G. Rigtrup
51-1814		0.067	1.61	Ground	Gary and Karmel Clay
51-3704		0.022	0.92	Ground	Zions First National Bank
51-3833		0.015	1.59	Ground	Peggy M. Jones
51-3834			0.98	Ground	J. Frank Meacham
51-3835		0.022	0.28	Ground	Dale S. Judd
51-1836		0.022	0.28	Ground	Dale S. Judd
51-7900			1.45	Ground	Sorensen Angus Ranch Inc.
51-7901			1.45	Ground	Sorensen Angus Ranch Inc.
51-2351		0.089	2.32	Ground	Kevin Sorensen
51-2450		0.089	1.92	Ground	Zions First National Bank
51-2451		0.011	2.82	Ground	Douglas J. Jones
51-5468		0.22	0.67	Ground	Dale S. Judd
51-5639		0.033	2.97	Ground	Don R. Coombs
51-7118			2.09	Ground	East Jordan Irrigation Company
51-7119			2.09	Ground	East Jordan Irrigation Company
51-7120			1.94	Ground	East Jordan Irrigation Company
51-7121			2.09	Ground	James P. and Flora G. Clarke
51-7123			1.64	Ground	East Jordan Irrigation Company
51-7131			5.52	Ground	East Jordan Irrigation Company
51-7163			2	Ground	James P. and Flora G. Clarke
51-3894			2.8	Ground	Jack Jensen Family Trust
51-8136			1.76	Ground	Kaycee L. Field
51-8137			1.76	Ground	Lyle A. and Debra M. Groves
51-8317			0.46	Ground	Helina Carter
51-8405			6.35	Ground	Helina Carter
51-7649			0.06	Ground	Helina Carter
51-7665			4.06	Ground	East Jordan Irrigation Company
51-7672			0.45	Ground	Helina Carter
51-7732			1.17	Ground	Helina Carter
51-7843			0.61	Ground	East Jordan Irrigation Company
a32065			1.76	Ground	David and Rachelle Hyer
a32066			1.73	Ground	Kent and Dorothy Wetzel
a22798			7.89	Ground	South Jordan Canal Company
a19623			56.02	Ground	JRL Holdings #2, LLC
53-1635			38.45	Ground	Utah and Salt Lake Canal Company
53-1636			12.81	Ground	Utah and Salt Lake Canal Company
53-1729			18.41	Ground	Utah and Salt Lake Canal Company

53-1567		18.41	Ground	Utah and Salt Lake Canal Company
a19623		112.04	Ground	JRL Holdings #2, LLC
a19623		56.02	Ground	JRL Holdings #2, LLC
51-1939	0.002	1.59	Ground	Jimmy J. and Jacqueline H. Caras
a37698		49.6	Ground	JLC
a39428		13.55	Ground	East Jordan Irrigation Company
a39454		78.02	Ground	East Jordan Irrigation Company
a39735		90.67	Ground	Welby Jacob Water Users Company
51-2265	0.018	1.39	Ground	Franklin S. Hiatt
51-2472	0.223	29.63	Ground	Margaret Hone
51-2512	0.033	7.25	Ground	Blue Horizons, LLC
51-2601	0.067	3.42	Ground	Blue Horizons, LLC
51-2701	0.135	60.15	Ground	Gerald N. Andersen Living Trust
51-5130	0.009	2.57	Ground	Camalot Properties Inc.
51-5262	0.015	0.7	Ground	Tracy Petersen Homes, Inc.
51-5263	0.015	0.7	Ground	Tracy Petersen Homes, Inc.
51-5265	0.015	0.7	Ground	Tracy Petersen Homes, Inc.
51-5533	0.015	2.57	Ground	Ronald J. Sherman
51-6086	0.013	1.67	Ground	Rodney A. Zabriskie and Jodi T. Zabriskie
51-6656		1.7	Ground	Tracy Petersen Homes, Inc.
51-7104		4.05	Ground	Jared L. and Holly D. Davis
51-7105		8.95	Ground	Jared L. and Holly D. Davis
51-7106		1.95	Ground	Vernal R. and Christy Shepherd
51-7107		4.9	Ground	Jared L. and Holly D. Davis
51-7108		2.2	Ground	Jared L. and Holly D. Davis
51-7109		0.19	Ground	Stanley J. and Lynette W. Goodrich
51-7402		0.48	Ground	Michael P. and Mary B. Hogue
51-7535		0.85	Ground	Jared L. and Holly D. Davis
51-7573		0.95	Ground	Matthew R. and Leslie K. Urmston
51-7575		0.95	Ground	Gerri Jean Lundquist
51-7652		0.45	Ground	David C. and Shauna E. Bigler
51-7916		0.25	Ground	Vernal R. and Christy Shepherd
51-7917		7	Ground	Vernal R. and Christy Shepherd
51-8052		1.28	Ground	Cooper Bringhurst
51-8624		4.47	Ground	Stanley J. and Lynette W. Goodrich
a41647		4.64	Ground	Utah Lake Distributing Company
51-1523	2	160	Ground	Glen F. Cowan
51-4658	0.011	6.36	Ground	Blair Beckstrom
51-7832		3.7	Ground	Eddie E. Ballard
51-1834		1.45	Ground	Chad D. and Terianne D. Fenn
51-1855	0.009	5.59	Ground	Jack D. Larsen
51-3750	0.012	7.85	Ground	Paul and Brenda Margetts
51-4456		1.57	Ground	Chad D. and Terianne D. Fenn
51-6544		1.4	Ground	C & T Fenn Farms, LLC
51-6539		1.73	Ground	Dale L. Woolsey
51-6751		2.83	Ground	Brent and Diane Thompson
51-6752		2.85	Ground	Roy E. and Alicyn A. Sudyvin
51-6809		1.73	Ground	Leah J. and Thomas R. Patton
51-8037		1.45	Ground	Chad D. and Terianne D. Fenn
51-8284		4.15	Ground	Chad D. and Terianne D. Fenn
51-8316		3	Ground	Scott L. Beckstrom
51-1143	0.015	0.95	Ground	Kevin J. and Brenda F. Monk
51-1183	0.015	0.87	Ground	Elmer C. and Iris G. Crump
51-1311	0.014	2.13	Ground	Matt L. and Sandra N. Jarvis
51-1473	0.047	1.4	Ground	George E. and Elain J. Banks
51-1521	0.008	1.65	Ground	Trent Jepperson and Morgan Jepperson
51-1539	0.044	13.12	Ground	Kevin J. and Brenda F. Monk
51-1605	0.001	0.9	Ground	Jolene H. Monk
51-1796	0.134	2.77	Ground	Brad and Christy Sorensen
51-2993	0.013	1.67	Ground	Lamar R. and Susan Barrington
51-3008	0.052	3.08	Ground	John Kay and Ann W. Hansen
51-3689	0.002	1.85	Ground	George E. and Elain J. Banks
51-3721	0.89	2.85	Ground	Alvin V. Crump
51-3857	0.015	1.55	Ground	Eldon A. Neves and Diana R. Neves
51-4241	0.014	1.13	Ground	Shirl A. Stewart
51-4275	0.012	1.51	Ground	Lewis J. Pintar and Afton B. Pintar
51-4317	0.007	0.72	Ground	Brad and Christy Sorensen
51-6294		2.29	Ground	Jolene H. Monk
51-6304	0.015	2.29	Ground	Martin Houck
51-2185	0.011	1.57	Ground	Kevin J. and Brenda F. Monk
51-2193	0.011	0.81	Ground	Shirl A. Stewart
51-2329	0.089	2.35	Ground	A. L. and Cola C. Flanders
51-2369	0.12	1.63	Ground	Andrew Keith Prior
51-2370	0.027	4.82	Ground	J. Ross Nielsen & Sons

51-2571	0.045	0.36	Ground	Jarett Youd and Shari Youd
51-4750	0.012	1.16	Ground	Raymond Darrell & Charlotte S. Mecham
51-4874	0.008	1.32	Ground	Elaine S. Harmer
51-4941	0.012	0.35	Ground	Jonathan and Ashlee Robertson
51-4983	0.015	1.37	Ground	Eldon A. Neves and Diana R. Neves
51-5139	0.018	1.15	Ground	Joseph and Amy Oldham
51-5153	0.013	1.15	Ground	Melvin L. Wakefield
51-5543	0.015	1.87	Ground	Charence D. Holm
51-5404	0.015	2.66	Ground	Marvin E. and Peggy Roundy
51-5528		14.38	Ground	J. Ross Nielsen & Sons
51-5788	0.022	2.1	Ground	John Kay and Ann W. Hansen
51-7231		1.79	Ground	Marvin E. and Peggy Roundy
51-7650		0.5	Ground	Carol Marziale
51-8042		5.08	Ground	Boyd Anderson & Sons Company
51-8043		5.72	Ground	Boyd Anderson & Sons Company
51-8044		16	Ground	Boyd Anderson & Sons Company
51-8128		0.48	Ground	Randall L. and Barbara K. Clayton
51-8129		0.45	Ground	Randall L. and Barbara K. Clayton
51-8130		0.45	Ground	Jeffrey D. and Lori F. Crockett
51-7750		2	Ground	Rollo S. and Chrerril P. Jones
51-8711	0.014	1.2	Ground	Virgil Neves
				Ground
51-2152	0.033	0.95	Ground	Jacob Barney and Shelsy Barney
51-2205	0.004	0.93	Ground	Garth D. and Nancy A. Gooch
51-2206	0.001	0.72	Ground	Wallace M. & Tressa S. Sorensen
51-2219	0.047	1.16	Ground	Keith Y. Barney
51-2220	0.004	0.71	Ground	Keith Y. Barney
51-2221	0.002	0.21	Ground	Keith Y. Barney
51-2310	0.011	0.72	Ground	C. Neil Sorensen Family Trust
51-2316	0.022	0.7	Ground	Leonard D. and Swanny L. Simpson
51-2339	0.089	1.81	Ground	James Leslie Diamond Trust
51-2548	0.056	1.77	Ground	Eric D. & Raquel Shepherd
51-2570	0.089	38.29	Ground	Leo M. Banks
51-2654	0.007	0.57	Ground	West Mountain Investments
51-2706	0.134	50.75	Ground	Steven J. and Gloria K. Hardy
51-2707	0.134	50.75	Ground	Steven J. and Gloria K. Hardy
51-4925	0.015	1.2	Ground	C. Neil & Susan B. Sorensen
51-4991	0.022	1.93	Ground	David R. Cook
51-5233		1.52	Ground	Cory B. and Shannon D. Cloward
51-1221	0.015	0.73	Ground	Wallace M. Sorensen
51-1580	0.114	6.16	Ground	John and Sondra Sorensen
51-1598	0.135	16.1	Ground	Leonard C. & Swanny Sorensen
51-1797	0.009	0.72	Ground	John and Sondra Sorensen
51-1799	0.126	5.89	Ground	Wallace M. Sorensen
51-3495	0.019	1.16	Ground	Shirl Simmons
51-3713	0.022	0.91	Ground	Marion J. Sorensen
51-3714	0.022	0.91	Ground	Marion J. Sorensen
51-3916	0.008	2.42	Ground	Verl R. Dansie
51-4007	0.045	1.96	Ground	C. Neil & Susan Sorensen
51-5818		2.57	Ground	Kyle M. Spencer
51-6060	0.045	0.97	Ground	Wayne & Joan Hill
51-6613		1.59	Ground	Cristan and Evaly Merrell
51-6646	0.009	1.59	Ground	Lynn Barney
51-5233		1.52	Ground	Cory B. and Shannon D. Cloward
51-5689	0.004	1.46	Ground	Elizabeth Nielsen
51-5690		0.53	Ground	Bryan and Tasia Ottesen
51-3494		1.54	Ground	Jay and Sharon and Shane Giles
51-4440	0.004	0.25	Ground	Douglas M. and Vickie Barney
51-6187		0.89	Ground	Robert L. & Terri C. Hudson
51-6476	0.001	1.31	Ground	Casey Barney and Brittney Barney
51-6968		0.7	Ground	Jeffery Cook
51-2126	0.045	13.9	Ground	D.E.C. Partners LTD
51-4709	0.015	1.47	Ground	Isabelle J. Barney
51-4990	0.004	2.8	Ground	David R. Cook
51-5231	0.015	1.37	Ground	Charles Giles
51-5586	0.015	1.53	Ground	Hal D. & Kathryn D. Roberts
51-7286		0.59	Ground	Jay and Sharon and Shane Giles
51-7287		0.56	Ground	Jay and Sharon and Shane Giles
51-8638	0.007	0.45	Ground	Jacob Barney and Shelsy Barney
51-2082	0.067	5.21	Ground	James W. Byrnes
51-2100	0.067	2.52	Ground	B Westwood Farms Inc.
51-2101	0.027	2.52	Ground	B Westwood Farms Inc.
51-2150	0.013	2.09	Ground	David H. and Regina S. Dillman
51-2300		0.53	Ground	Jack Mckay and Amy Lee Taylor

51-2618	0.067	1.64	Ground	Keith W. Gordon
51-2633	0.067	5.7	Ground	Marlin E. Hall
51-2634	0.067	6.15	Ground	Marlin E. Hall
51-2635	0.067	5.7	Ground	Marlin E. Hall
51-2665	0.045	8.8	Ground	Production Resources LLC
51-4920	0.015	1.43	Ground	Albert B. and April S. Cornaby
51-5298	0.015	3.69	Ground	John M. Anderson
51-5407	0.015	2.71	Ground	Brent H. Gordon
51-5485		0.2	Ground	Glenn A. Christiansen
51-1139	0.045	5.7	Ground	Albert B. and April S. Cornaby
51-1144	0.015	1.62	Ground	J. Lamoyne and Beverly H. Hiatt
51-1149	0.015	0.42	Ground	Reed Christmas
51-1165		0.58	Ground	Cregg F. and Susan B. Gordon
51-1358		0.5	Ground	Marlin E. Hall
51-1516	0.1	42.17	Ground	Dan R. Williams
51-1179	0.002	0.95	Ground	John Anderson
51-3516	0.003	2.02	Ground	Cornaby Land & Livestock LLC
51-4043	0.018	3.88	Ground	William K. Graham
51-4578	0.018	1.5	Ground	William K. Graham
51-4582	0.015	1.73	Ground	Lynn Asay
51-6033	0.015	3.08	Ground	John M. Anderson
51-6607		1.81	Ground	Kirt and Karrie Z. Gurney
51-6626		1.41	Ground	Russell E. and Tammy L. Rasmussen
51-8132		0.45	Ground	Jack M. and Amy Taylor
51-7193		0.45	Ground	Marlin E. Hall
51-7194		0.45	Ground	Michael and Roni Morgan
51-7787		0.31	Ground	Cregg F. and Susan B. Gordon
51-7798		0.48	Ground	Lawrence E. Shimada Trust
51-7799		0.48	Ground	Conrad S. Shimada Trust
51-7800		0.28	Ground	Glenn A. Christiansen
51-7801		0.48	Ground	Rex ad Lensie Fensler
51-8632		1.59	Ground	Jack M. and Amy Taylor
a40929	0.015	4.88	Ground	Clair John and Janet Jausi Revocable Trust
a39338		6.88	Ground	North Jordan Irrigation Company
51-1114	0.015	1.37	Ground	John D. Youd
51-1136	0.015	1.68	Ground	Que and Lucile Steel Family Trust
51-1146	0.015	2.18	Ground	Wayne H. Vance
51-1224	0.015	1.95	Ground	Karl C. Branin
51-3484	0.018	1.25	Ground	Randal Purcell
51-3502	0.015	1.95	Ground	Luis J. and Karen L. Zea
51-3513	0.003	2.17	Ground	Dale Barney and Cheri F. Cornaby
51-3514	0.011	1.65	Ground	Dale Barney and Cheri F. Cornaby
51-4177	0.011	1.65	Ground	Ryan R. and Cindy R. Holt
51-4460	0.015	1.73	Ground	Jill C. Hale and Kevan C. Hale
51-4580	0.015	1.29	Ground	The Wengreen Family Trust
51-6629	0.015	1.45	Ground	Russell and Christi Youd
51-6368		2.29	Ground	D. Chris and Susan J. Hailstone
51-6560		1.45	Ground	Tim Grange
51-6561		1.45	Ground	Kenneth Paul and Gayle Lynn White
51-6562		1.45	Ground	Letitia Meredith
51-6563		1.45	Ground	Kody Leslee Kogianes
51-2158	0.056	1.93	Ground	Ronald K. Harward
51-2227	0.003	0.56	Ground	Norman Bellows
51-2228	0.022	3.46	Ground	Bryan & Janet Sanford
51-2843	0.033	1.15	Ground	Dale B & Cheri F. Cornaby
51-2845		2.71	Ground	Bert S. Aitken
51-2863	0.017	2.8	Ground	Jay P. & Michael S. Mackenzie
51-4820	0.015	0.98	Ground	Galloway Land & Livestock, LLC
51-5005	0.015	1.53	Ground	Beau S. and Madison K. Bufton
51-5421	0.015	1.45	Ground	Martha T. Rosenbaum
51-5481		9.41	Ground	Harwood Farms LLC
51-5684	0.018	2.77	Ground	Michael B. and Annie R. Rose
51-7391		1.5	Ground	Galloway Land & Livestock, LLC
51-7577		0.45	Ground	Garth D. Aitken
51-8654		1	Ground	Mark H. Openshaw and Kirsti M. Openshaw
51-6634		0.51	Ground	Lorinda Aitken
51-6918		1.47	Ground	Hiatt D. and Natalie W. Bean
51-6919		1.5	Ground	Wayne Earl and amy Michell Wengreen
51-7887		8.5	Ground	Hardman Family Trust
51-7888		8.5	Ground	Gregory A. and Lyndsey Hunter
51-7930		0.48	Ground	Hardman Family Trust
51-7931		0.48	Ground	Lyndsey Hunter
51-7932		7.83	Ground	Jill C. Hale and Kevan C. Hale
51-7981		7	Ground	Oldham Enterprises, LLC

51-8112		1	Ground	Ryan R. and Cindy R. Holt
51-8336		4	Ground	Tom C. and Jerelyn M. Sorensen
51-8427		1	Ground	Ryan R. and Cindy R. Holt
51-8446		1	Ground	Erik or Connie Petersen
51-1302	0.015	1.54	Ground	Bernell V. Argyle
51-1470	0.015	3.13	Ground	John D. Youd
51-3023	0.016	1.41	Ground	Duane B. and Marie S. Newitt
51-3515	0.011	3.27	Ground	Jay B. Cornaby and Randy C. Cornaby Family Trust
51-3629	0.045	0.81	Ground	Zachery Jessen and Heide Marziale Taylor
51-3719	0.045	1.54	Ground	Rodger and Rhonda Grange
51-4481	0.003	1.26	Ground	Merrill Holt Ashby
51-4922	0.015	0.99	Ground	Merrill Holt Ashby
51-5476	0.018	2.15	Ground	DEC Partners LTD
51-5478	0.011	3.16	Ground	Albert B. and April S. Cornaby
51-5479	0.007	1.4	Ground	Albert B. and April S. Cornaby
51-5480	0.013	1.4	Ground	Albert B. and April S. Cornaby
51-5482	0.011	1	Ground	Harward Farms, LLC
51-5487	0.015	1	Ground	Ken H. Talbot
51-5488	0.011	1	Ground	Lamaun Matson
51-5489	0.067	4.21	Ground	Stella Y. Dunn
51-5490	0.067	0.79	Ground	Leonard d. and Helen W. Beckstrom
51-5491	0.018	0.98	Ground	Stella Y. Dunn
51-5633	0.004	1.48	Ground	Duane B. Newitt
51-7918		0.45	Ground	Douglas B. and Nita A. Carter
51-8111		0.87	Ground	Douglas B. and Nita A. Carter
51-8222		2	Ground	Nicholas E. and Jamie L. Pintar
51-2154	0.007	2.51	Ground	J. Ivan Youd
51-2227	0.022	1.43	Ground	Ken H. Talbot
51-2235	0.089	1.53	Ground	Albert B. and April S. Cornaby
51-2237	0.067	1.57	Ground	Lamaun Matson
51-2288	0.045	2.65	Ground	Blaine O. and Mary A. Baum
51-2289	0.033	1.54	Ground	Dale Cornaby
51-2322	0.033	2.48	Ground	Maylee Land and Livestock LLC
51-2323	0.007	2.43	Ground	Hawkins Livestock Inc.
51-2346	0.089	12.36	Ground	Albert B. and April S. Cornaby
51-2360	0.011	2.15	Ground	Harward Farms, LLC
51-2573		0.08	Ground	Lewis J. Pintar and Afton B. Pintar Family Trust
51-2574		3.04	Ground	Lynn or Kathryn Banks
51-2952	0.007	0.92	Ground	J. Ivan Youd
51-6283	0.015	2.15	Ground	Elaine Corless
51-7338		0.45	Ground	Norman Banks
51-7677		1.46	Ground	David S. and Alison P. Hansen
51-1294	0.015	1.9	Ground	Lewis J. Pintar and Afton B. Pintar Family Trust
51-1341	0.015	4.28	Ground	Donald A. Sorensen
51-1729	0.067	9.39	Ground	ZEB Christmas and Kati M. Cropper
51-1736	0.045	2.1	Ground	George E. and Elaine J. Banks
51-1747		9.55	Ground	Delles F. Nilsen
51-1809	0.02	1.2	Ground	Lynn N. and Mary Jane Archuleta
51-2080	0.067	4.2	Ground	John Kay and Ann Hansen
51-2090	0.022	1.16	Ground	Grant C. Tingey
51-2118		1.81	Ground	Reeder Family Trust
51-2119	0.011	7.95	Ground	LDS Church
51-2156	0.089	8.28	Ground	Cathi Jarvis
51-2204	0.045	5.25	Ground	Hyrum Ottesen
51-2304	0.089	2.93	Ground	Robert J. and Joyce Banks
51-2309	0.054	1.04	Ground	Duane A. & Saundra D. Sorensen
51-2311	0.022	1.45	Ground	The Bill J. Roach Family Trust
51-2317	0.089	3.25	Ground	Leo M. Banks
51-2318		9.25	Ground	Cody S. and Ed Holt
51-2361	0.011	3.61	Ground	Lew Leon Christmas
51-2498		6.16	Ground	Scott Family Trust
51-2572	0.069	10.94	Ground	Fred R. and Hazel Marlene Banks
51-2748		4.65	Ground	Scott Family Trust
51-2980	0.015	1.37	Ground	Robert E. Williams
51-3718	0.054	1.21	Ground	Duane A. & Saundra D. Sorensen
51-4497	0.015	1.53	Ground	Larry G. and Ann F. Banks
51-4924	0.015	0.9	Ground	Ross K. Barney
51-4946	0.015	0.92	Ground	Opal R. Parry
51-4960	0.015	2.13	Ground	The Bill J. Roach Family Trust
51-5184	0.015	3	Ground	Hyrum Ottesen
51-5185	0.015	3.65	Ground	Ernest Roach Farms Inc.
51-5188	0.015	0.89	Ground	Shirlene R. Ottesen
51-5486	0.022	2.77	Ground	ZEB Christmas and Kati M. Cropper
51-5610	0.064	3.73	Ground	Edward Blair & Genevieve J. Thomas

51-5611	0.012	1.2	Ground	Joel K. Rogers ET UX
51-5814		12.15	Ground	Donald A. Sorensen
51-6659		1.47	Ground	Ernest Roach Farms Inc.
51-6897		0.45	Ground	Steven Bruce and Karen Jean Smart
51-7043		0.45	Ground	David E. and Rebecca J. Thomas
51-7102		0.83	Ground	George E. and Elaine J. Banks
51-7199		0.45	Ground	Robert and Linda Talbot
51-7521		0.45	Ground	John and Lorilla R. Leckie-Hawkins
51-7671		0.45	Ground	West Mountain Investments
51-8358		1.45	Ground	Brian A. Smith
51-8359		1.45	Ground	Edward Blair & Genevieve J. Thomas
51-8400		1.41	Ground	The Bill J. Roach Family Trust
51-3739		1.54	Ground	Lorilla R. Leckie Hawkins and John Hawkins
51-2697		1.27	Ground	Skyler Brent Frost
51-4844	0.015	1.45	Ground	Russell L. and Christa L. Nichols
51-5493	0.015	1.57	Ground	Chad c. & Caryn Gillman
51-2121	0.033	1.96	Ground	Jeffery L. and Vicki G. Stulce
51-3666	0.018	2.09	Ground	Janet R. Cloward Family Trust
51-1274	0.015	2.88	Ground	Jane B. Nelson Family Trust
51-1297	0.015	2.12	Ground	Everett Hansen
51-1135	0.044	2.83	Ground	BCR enterprises LTD
51-1780	0.04	1.83	Ground	Randy R. Carter
51-1898	0.011	1.44	Ground	Karen H. Thomas
51-3840	0.026	1.31	Ground	Allen B. and Becky Clark
51-3841	0.026	1.03	Ground	Blaine D. Huff
51-3859	0.01	1.11	Ground	Jill Dedo Phrson
51-4715		1.65	Ground	Marvin R. Christensen
51-7041		0.84	Ground	Randall H. and Rebecca C. Clement
51-7189		0.45	Ground	Gary Paul and Terri A. Beckstrom
51-7223		0.5	Ground	Rpbert R. Kaid
51-7466		0.5	Ground	Earl Stoneman
51-7543		0.76	Ground	Michael B. and Shauna W. Gardner
51-7745		0.45	Ground	Brian Ford
51-7746		0.45	Ground	Robert L. and Carrie Wyman
51-2084	0.013	8.4	Ground	Sterling D. Jones
51-2120	0.056	2.11	Ground	Everett Hansen
51-2153		1.47	Ground	Marilyn c. Sorensen
51-2172	0.089	1.33	Ground	Charles Argyle
51-2184		1.63	Ground	David Matt Johnson
51-2318		9.25	Ground	Cody S. and Ed Holt
51-2363	0.015	0.9	Ground	Richard L. Edwards
51-2375	0.026	0.87	Ground	Maple Lake Farms, LLC
51-2527	0.089	2.85	Ground	Andrea Allen
51-6366		2.37	Ground	Janice C. Nielsen
51-6380		1.62	Ground	Richard w. and Mary J. Pace
51-6385		1.73	Ground	Mark R. and Marilyn T. Jones
51-6804		2.01	Ground	John Hastings
51-6837		2.29	Ground	Charles H. Herndon
51-6857		2.29	Ground	Scott Dale Ethington
51-6868		1.39	Ground	Callan Stone
51-6898		0.45	Ground	David Matt Johnson
51-6909	0.041	2	Ground	Provo CanyonOaks, LLC
51-6938		1.73	Ground	Kent and Dorothy Wetzal
51-6939		1	Ground	Mark A. and Suzanne S. Lindsay
51-6947		2	Ground	Hal P. & Claudeen Schulthies
51-6948		2	Ground	Shane & Kimberly schulthies
51-7811		0.5	Ground	Earl Stoneman
51-7875		0.92	Ground	Gary Paul and Terri A. Beckstrom
51-8138		1.76	Ground	Davido and Rachelle Hyer
51-8141		1.31	Ground	Rodger Grange
51-8481		0.5	Ground	Heide Taylor
51-8482		0.55	Ground	Gilbert Archuleta
51-1121		2.41	Ground	Ray Lynn and Dalene Smith Hurst
51-1126	0.015	0.36	Ground	John Tuckett
51-1202	0.02	1.77	Ground	Florence Barney
51-1205	0.015	1.53	Ground	Bill L. & Junette S. Argyle
51-1208	0.015	1.26	Ground	Glade A. and Marie Y. Carr
51-1229	0.015	1.29	Ground	Ashlyn Brunson and Jace D. Brunson
51-1237	0.015	0.45	Ground	Rigtrup Poultry Farm Inc.
51-1241	0.015	0.81	Ground	Verda F. Tuckett
51-1469	0.013	0.83	Ground	Veldon D. Dowley ET UX
51-1512	0.029	0.88	Ground	Brent and Heather Frost
51-3652	0.002	1.17	Ground	Bruce A. Daniels
51-3706	0.045	5.13	Ground	F. Reed & Marie C. Shepherd

51-3815	0.013	1.73	Ground	C. Dean and Naomi O. Cox
51-3880	0.004	1.65	Ground	Sheril R. Provstgaard
51-4085	0.013	1	Ground	Shoreline Farms LC
51-4696	0.015	1.32	Ground	James R. Boyack and Judy A. Boyack
51-4823	0.015	2.71	Ground	Kim and Cindy Burningham Family Trust
51-4824	0.015	1.26	Ground	Melissa Craig
51-2074	0.089	1.27	Ground	Douglas d. Ericksen
51-2075	0.379	18.45	Ground	Leah Hollywood
51-2129		1.49	Ground	Engle Family Trust
51-2192	0.111	2.07	Ground	R. Crawford Brown
51-2209	0.007	2.13	Ground	Michael Losee ET UX
51-2327	0.045	2.27	Ground	Rigtrup Poultry Farm Inc.
51-2341	0.033	1.9	Ground	Clyde Ross Wilson
51-2342	0.056	2.63	Ground	Daven D. & Jose A. Engle
51-2343	0.015	1.51	Ground	Robert Delyle Giles
51-2353	0.004	2	Ground	Ronald D. Engle
51-2354	0.033	0.73	Ground	Mark & Mary O. Huff
51-2535	0.056	1.32	Ground	Board of Education Nebo School District
51-2541	0.111	1.82	Ground	F. Reed & Marie C. Shepherd
51-2543	0.022	3.15	Ground	Ronald D. Engle
51-2578	0.002	1.44	Ground	Ruth J. Huff
51-2683	0.1	2.8	Ground	Sterling C. and Marylyn Argyle
51-2839	0.011	0.45	Ground	Wendell J. Francis
51-4883		0.45	Ground	Jim A. Rigtrup Family Trust
51-5159	0.015	1.99	Ground	Arnold Mellor
51-5337	0.015	2.55	Ground	Maple Lake Farms, LLC
51-5495	0.007	1.96	Ground	John D. Youd
51-5506	0.011	2	Ground	Ronald D. Engle
51-5798	0.015	3.02	Ground	Vonetta Fackrell
51-6059	0.015	2.01	Ground	Ray Lynn and Dalene Smith Hurst
51-6168	0.015	1.73	Ground	Chad and Chatell Bigler
51-6206	0.015	2.43	Ground	Grant D. and Diane C. Tew
51-6224	0.015	2.49	Ground	Michelle N. Shepherd
51-6271	0.015	1.84	Ground	Daven Engle
51-6710		2.15	Ground	J. Rex Olsen
51-6722		2.85	Ground	Janet B. Edwards
51-6838		1.45	Ground	Warren K. Anderson
51-8184		1.45	Ground	Kelly and Kristine Degraffenried
51-8306		3.44	Ground	Rigtrup Poultry Farm Inc.
51-8326		0.5	Ground	Rigtrup Poultry Farm Inc.
51-8424		0.56	Ground	Shoreline Farms LC
51-8426		1	Ground	Melissa Craig
51-2858	0.015	1.9	Ground	Bryant Leo Jolley
51-2915	0.011	1.11	Ground	The D. Nelson Family Trust
51-7266		0.45	Ground	Jenefer Nielson
51-7267		0.45	Ground	Gaylene Larsen
51-7312		1	Ground	James L. Farnsworth
51-7389		0.45	Ground	Dennis C. and Marlene Murray
51-7392		1.01	Ground	Korry W. and Candus B. Trapp
51-7533		0.45	Ground	Bobbie Jo and Wade D. Williams
51-1064	0.015	1.71	Ground	Alfred B. Baadsgarrd
51-1072	0.02	1.32	Ground	Corp. of the Presiding Bishop of the LDS Church
51-1089	0.015	0.89	Ground	Casey C. and Megan Williams
51-1105		0.84	Ground	Dallen Rozema and Janell Rozema
51-1110	0.015	1.82	Ground	Mark Dee Hansen
51-1147	0.015	0.81	Ground	Casey Sherman and Melinda Sherman
51-1223	0.015	2.43	Ground	Scott Huff
51-1418	0.015	2.09	Ground	Allen E. Clayson
51-1427	0.015	1.98	Ground	Scott and Lori Oyler
51-1450	0.033	2.45	Ground	Bud Jones & Elaine R. Shepherd
51-1627	0.015	0.75	Ground	Layne M. Nusink
51-1778	0.036	1.15	Ground	Leon H. and Grace Clayson
51-1842	0.005	1.37	Ground	Louise J. Beckstrom
51-1923	0.01	0.95	Ground	Steven A. Simmons
51-1928	0.033	2.8	Ground	Brett Herbst
51-1951	0.033	0.06	Ground	Dan M. Banks
51-2085	0.004	0.56	Ground	Mark Dee Hansen
51-2095	0.022	2.43	Ground	Scott Huff
51-2097	0.033	1.03	Ground	Shepherd Poultry Farms, L.L.C.
51-2098	0.031	1.76	Ground	Shepherd Poultry Farms, L.L.C.
51-2128	0.089	1.1	Ground	Louise J. Beckstrom
51-2140	0.038	3.89	Ground	Blaine Bradford
51-2148	0.01	0.95	Ground	Steven A. Simmons
51-2171	0.025	1.9	Ground	Bernell T. Aitken

51-2230		1	Ground	BNH Properties, LLC
51-2232	0.033	2.07	Ground	A. K. Bowers
51-2238	0.004	0.65	Ground	Allen E. Clayson
51-2340	0.387	2.75	Ground	Bud Jones & Elaine R. Shepherd
51-2349	0.022	1.72	Ground	Engle Family Trust
51-2557		1.45	Ground	Randall K. & Joann Gordon
51-2558	0.067	1.15	Ground	Elliott Sabey
51-2870	0.028	0.79	Ground	Arthur Mark Peterson
51-3837	0.022	1.05	Ground	Engle Family Trust
51-4018	0.02	1.4	Ground	Arthur Mark Peterson
51-4042	0.009	0.5	Ground	Alfred B. Baadsgaard
51-4072	0.022	1.71	Ground	Shepherd Poultry Farms, L.L.C.
51-4073	0.011	1.15	Ground	Jason and Misty Shepherd
51-4242	0.015	1.69	Ground	Bruce Gordon
51-4950	0.015	0.79	Ground	Marlin E. Hall
51-5195	0.015	2.71	Ground	Allen L. Shepherd
51-5252	0.015	0.45	Ground	Dan M. Banks
51-5389	0.015	3	Ground	Bud Shepherd and Sons Poultry Farms Inc.
51-5537	0.015	3	Ground	Bud Shepherd and Sons Poultry Farms Inc.
51-5553	0.015	3	Ground	Bud Shepherd and Sons Poultry Farms Inc.
51-5571	0.015	3	Ground	Bud Shepherd and Sons Poultry Farms Inc.
51-5605	0.036	1.53	Ground	Mark L. Hall ET UX
51-6564		1.59	Ground	Marjorie Brown
51-6606		1.84	Ground	Boyd A. Ford
51-6621		2.01	Ground	Kent T. and Maylee Marie Lemon
51-6622		1.67	Ground	Scott Hintze
51-6791		3	Ground	Bud Shepherd and Sons Poultry Farms Inc.
51-6928		4.41	Ground	Fruce Lowell & Anita Kay Gordon
51-7147		4.41	Ground	Fort Field Little Dry Creek Water Users Assn.
51-7722		1.5	Ground	Jaret K. and Lindy C. Gordon
51-7840		45	Ground	Theodore H. and Maxine P. Gordon
51-8152		0.61	Ground	Steven Simmons
55-326		9.47	Ground	Allen Shepherd
51-2076	0.011	4.68	Ground	Ronald W. Ekins
51-2149	0.111	3.67	Ground	Jay Morris Evans ET UX
51-2157	0.004	0.81	Ground	Kay Whiteley
51-2294	0.007	1.03	Ground	Zane Evans
51-2350	0.067	4.81	Ground	Cathy Anne Martin
51-2365	0.056	1.71	Ground	Lee Ray and June Z. Shepherd
51-2366	0.022	1.71	Ground	Lee Ray and June Z. Shepherd
51-2497	0.002	1.03	Ground	Zane Evans
51-2515	0.004	0.59	Ground	Jorge Molina and Isabel Maria Felix
51-2538	0.067	1.06	Ground	Edna Dimick
51-2666	0.089	5.71	Ground	Lee Ray Shepherd
51-2747		0.5	Ground	Moroni Frenzel
51-2794	0.011	3.96	Ground	Blake L. Clayson and Sandra B. Clayson
51-2795	0.011	3.96	Ground	Kenneth E. Clayson
51-4798	0.015	1.12	Ground	Neil L. and Kathryn M. Anderson
51-4825	0.015	1.51	Ground	Ronald W. Ekins
51-5146	0.015	1.53	Ground	Jerry Lee Shepherd
51-5228	0.007	1.21	Ground	Lee Ray and June Z. Shepherd
51-5465	0.013	0.7	Ground	Zane Evans
51-5466	0.011	0.7	Ground	Zane Evans
51-5483		0.09	Ground	Spencer M and Trina P. Cluff
51-5484		0.36	Ground	Andrew and Kelly Crosby
51-5519	0.018	1.87	Ground	John Banks
51-5609	0.001	0.77	Ground	Jay Morris Evans ET UX
51-7385		0.73	Ground	Banjamin A. Jaussi
51-7386		0.73	Ground	Banjamin A. Jaussi
51-7792		0.22	Ground	Jeffrey Kevan and Nicole Clark Hale
51-7793		0.45	Ground	Marvell Broderick Family Trust
51-7794		0.45	Ground	Randall P. and Marsha L. Harris
51-7795		0.36	Ground	Spencer M and Trina P. Cluff
51-7796		0.48	Ground	B. Wade and Tina Noyes
51-7797		0.09	Ground	Andrew and Kelly Crosby
51-7803		0.25	Ground	Jeffrey Kevan and Nicole Clark Hale
51-7878		0.5	Ground	Colby J. and Dusty Olsen
51-7880		0.5	Ground	Austin Alan and Tami Lynn Christensen
51-1309	0.015	0.81	Ground	Thomas E. & June C. Tuckett
51-1554	1.59	13.92	Ground	Zane Evans
51-1745	0.033	1.65	Ground	Ned and Janet Miner
51-3598	0.015	2.17	Ground	Sam and Susan Clayson
51-3868	0.011	4.7	Ground	Brice E. & Diana E. Thomas
51-4510	0.015	2.05	Ground	Jack G. Linde

51-6530		1.73	Ground	Rick D. and Shareen P. Golish
51-6534		1.73	Ground	Shawn V. and Ashley Jorgensen
51-6535		1.73	Ground	Michael L. Robinson Properties L.C.
51-6548		2	Ground	Leland R. Gappmayer
51-6632		1.13	Ground	Chris and Stacey Hanks
51-6730		1.59	Ground	Russel L. and Molly E. Clayson
51-8192		1.5	Ground	Trent and Amanda H. Shepherd
51-8372		0.76	Ground	Frank Mecham
51-8412		1.3	Ground	John D. and Carlyn Shepherd
51-8421		1.51	Ground	Chris and Stacey Hanks
51-2159	0.022	4.93	Ground	Clair O. Anderson Farms Inc.
51-2160		3.27	Ground	Donald Blake Wride
51-2161		7.22	Ground	Clair O. Anderson Farms Inc.
51-2162		0.67	Ground	Gregory P. and Tiffany T. Maughn
51-2163	0.007	1.45	Ground	Cory Blake Wride
51-2180	0.004	0.78	Ground	Mary C. Christensen
51-2202	0.067	5.2	Ground	Martin and Darlene Houck
51-2203		1.74	Ground	Richard P. and Sheron Lee Bearnson
51-2789	0.067	18.47	Ground	Clair O. Anderson Farms Inc.
51-2924	0.016	1.01	Ground	Lynn B. & Verla El Freda Shell Richardson
51-7172		0.69	Ground	Gregory P. and Tiffany T. Maughn
51-7459		2.02	Ground	James R. and Laray M. Williams
51-7460		2.02	Ground	Jackson R. Fitzgerald
51-7642	0.007	4.21	Ground	Clair O. Anderson Farms Inc.
51-7643	0.008	5.6	Ground	Clair O. Anderson Farms Inc.
51-7644	0.013	9.41	Ground	Wayne C. Anderson
51-1303	0.015	1.12	Ground	Richard W. Erickson Foundation
51-1775	0.022	0.65	Ground	Rodney Ryan Stewart and Alese A. Stewart
51-1904	0.031	2.7	Ground	Jackson R. Fitzgerald
51-1906	0.022	3.43	Ground	James I and Janine King
51-2989	0.045	2.8	Ground	Donald Blake Wride
51-2991	0.078	6.38	Ground	D. Blair Olsen
51-3599		0.45	Ground	Denton Lee and Cecylia C. Worthington
51-3626	0.004	0.62	Ground	Youd Family Trust
51-3627	0.016	2.91	Ground	Youd Family Trust
51-4013	0.005	0.79	Ground	Douglas W. & Evelynne F. Houghton
51-4032	0.033	0.87	Ground	Alton H. Richardson
51-6371	0.015	3	Ground	Clair O. Anderson Farms Inc.
51-6612		1.51	Ground	Kenneth Brent Peay
51-6664		1.47	Ground	Sheron Lee Bearnson
51-8100		2.03	Ground	Michelle Petersen Sovine
51-8105		1.53	Ground	John and Summer Larsen
51-8388		0.48	Ground	Denton Lee and Cecylia C. Worthington
51-8444		3.6	Ground	Christopher G. and Brittney J. Bartold
51-7645	0.004	2.8	Ground	Clair O. Anderson Farms Inc.
51-7733		0.9	Ground	Bradley L. and Theo L. Brown
55-5807		1.22	Ground	Bradley L. Brown
51-1041	0.012	1.46	Ground	Larry D. and Melanie J. Jensen
51-1085	0.022	7.58	Ground	Youd Family Trust
51-1132	0.014	0.45	Ground	Clarence Gardner Shepherd
51-1134	0.02	1.73	Ground	Max L. Bradley
51-1339	0.015	5.7	Ground	Archie Beckstrom
51-1444	0.019	3.34	Ground	Shepherd Poultry Farms, L.L.C.
51-1820	0.011	2.85	Ground	Ted S. and Sharleen Ahlin
51-1821	0.022	1.79	Ground	Ted Ahlin
51-1878	0.022	3.02	Ground	R. H. Andrus
51-1967	0.022	1.01	Ground	Larry W. and Lynda Wright
51-3842	0.013	2	Ground	Richard K. and Sonjia H. Johnson
51-3890	0.011	4.47	Ground	Earl R. Thomsen
51-4027	0.004	2.69	Ground	Neil R. and Jolene Lundell
51-4031	0.004	2.42	Ground	Dale J. and Holly O. Beckstrom
51-4066	0.011	1.25	Ground	Lee N. and Janice C. Jensen
51-4067	0.011	5.83	Ground	Alfred B. Baadsgaard
51-4532	0.015	1.45	Ground	H. Clifford Clark
51-4616	0.015	2.26	Ground	Frank A. Beckstrom
51-2024	0.096	6.58	Ground	Kevin and Annette Anderson Living Trust
51-2094	0.007	5.06	Ground	Gregory J. and Natalie H. Price
51-2201	0.018	4.19	Ground	Cathlene C. Caras Trust
51-2208	0.013	1.98	Ground	Chet and Barbara Steele
51-2214	0.067	8.45	Ground	Archie Huff
51-2222	0.089	2.48	Ground	Mark L. Larsen and Loni Larsen
51-2269	0.009	5.55	Ground	Clarence A. Beckstrom
51-2345	0.022	2.11	Ground	Elizabeth Ferguson
51-2355		0.81	Ground	Maple Lake Farms, LLC

51-2359	0.011	6.88	Ground	Glen M. Baadsgaard
51-2415	0.033	2.7	Ground	Galloway Land & Livestock, LLC
51-2745	0.016	2.41	Ground	Dean L. & Bernice Taylor
51-2932	0.016	1.5	Ground	Ryan Cloward and Denise Cloward
51-2933	0.016	1.5	Ground	Ryan Cloward and Denise Cloward
51-4652	0.011	1.79	Ground	Jay Hair
51-4832	0.015	1.37	Ground	Jay Lynn & Mary Ann Youd
51-5436	0.015	1.59	Ground	Dale J. and Holly O. Beckstrom
51-6013	0.015	0.45	Ground	Leesa Ewell
51-6072	0.015	1.53	Ground	Greg and Susan Hedquist
51-6115	0.015	1.98	Ground	Taylor Cabinets Inc.
51-6164	0.012	2.23	Ground	Loretta Clayson
51-6374	0.015	1.51	Ground	Tammy C. Peay
51-6541	0.015	1.45	Ground	Earnest C. Brinkerhoff Trust
51-6629		1	Ground	Gary M. Gasper
51-6660		2.01	Ground	Gary Clay and Karmel Clay
51-6689		2.01	Ground	Denton Lee and Cecylia C. Worthington
51-6731		1.73	Ground	Bonnie L. Foy
51-6770		2.99	Ground	Michael Lee Shepherd
51-6846		1.59	Ground	Clay L. and Bonnie L. Goy
51-6858		1.73	Ground	Dick Rozema
51-6922		1.67	Ground	Lloyd Baadsgaard
51-7929		1.85	Ground	Bonnie and Larry J. Blain
51-8449		0.11	Ground	Crista K. Story
51-7148		0.77	Ground	Fort Field Little Dry Creek Water Users Assn.
51-7462		0.94	Ground	Lorie Ann Jones
51-7529		0.94	Ground	David A. and Ann Marie Strong
51-7530		0.94	Ground	Phyllis Ann Aseltine
51-7531		0.94	Ground	Crista K. Story
51-7532		0.94	Ground	Todd K. Fisher
51-7736		1.5	Ground	Gary C. Thacker
51-7835		0.45	Ground	Fort Field Little Dry Creek Water Users Assn.
51-8645		16.22	Ground	Crista K. Story
51-1091	0.015	2.37	Ground	Richard Ericksen and Janet Ericksen
51-1115	0.015	1.73	Ground	Amie M. Sisam
51-1137	0.015	1.73	Ground	Cody Sisam
51-1192	0.015	1.73	Ground	John Earl Ludlow
51-1328	0.015	1.73	Ground	Lynn Argyle
51-1362	0.015	1.73	Ground	Bud Shepherd
51-1390	0.015	3.46	Ground	Terry G. & Linda L. Ellison
51-139	0.015	1.73	Ground	Weston S. and Marla K. Pace
51-1426	0.015	2.73	Ground	Bert H. Argyle
51-1881	0.018	0.87	Ground	Jerry L. Provost Family Trust Agreement
51-1901	0.077	5.25	Ground	Schylor Brown
51-3018	0.04	3.05	Ground	Sam & Jan Clayson Trust
51-3485	0.018	1.15	Ground	David E. and Jondy N. Reid
51-3883	0.011	1.91	Ground	Matthew R. and Christine S. Johnson
51-4030	0.019	3.01	Ground	Kent Youd
51-4593		1.43	Ground	Zeeman Poultry Ranch Inc.
51-5395	0.015	0.42	Ground	Zeeman Poultry Ranch Inc.
51-2015	0.2	1.32	Ground	Dell N. Argyle
51-2043		7.26	Ground	Howard M. and Kathleen S. Bahr
51-2047	0.056	0.81	Ground	John I. Angus
51-2108	0.02	8.57	Ground	Pauline T. Hughes
51-2125	0.089	2.57	Ground	Alene R. Zeeman
51-2131	0.045	2.32	Ground	Timothy W. and Denise H. Mullins
51-2132	0.067	2.82	Ground	F. M. Cornaby
51-2135		1.89	Ground	John Hal Johnson
51-2225	0.033	1.77	Ground	Michael J. Olson and Heidi M. Olson
51-2352	0.056	1.74	Ground	J. R. Huff
51-2399	0.011	3.47	Ground	Donald and Mary Ann Ludlow
51-2416	0.045	10.3	Ground	T. E. Ludlow
51-6347	0.015	1.79	Ground	Joel Bll and Milly M. Park
51-6370	0.015	1.79	Ground	Wayne E. & Deann R. Harris
51-6408		2.29	Ground	Ronald and Patricia Ivie
51-6611		0.59	Ground	Bradford A. Mellor
51-6777		3	Ground	Zeeman Poultry Ranch Inc.
51-7275		0.45	Ground	Rex A. and Lisa L. Coombs
51-7664		1.51	Ground	Jared L. and Joell S. Zeeman
51-7856		0.9	Ground	Rex A. and Lisa L. Coombs
51-8477		1.51	Ground	Darren Brown
51-8478		1.96	Ground	Darren Brown
51-8460	0.026	1.75	Ground	MTM Enterprises LLC
51-8619		1.75	Ground	MTM Enterprises LLC

51-8710		4.5	Ground	Jerry Jensen and Ruth Jensen
51-6777		3	Ground	Zeeman Poultry Ranch Inc.
51-6778		1.48	Ground	Jared L. and Joell S. Zeeman
51-6870		1.59	Ground	Lynn Rindlisbacher
51-6930		1.51	Ground	Shane A. and Jill K. Stratton
51-6931		1.51	Ground	The Jerry & Ruth Jensen Trust
51-6932		1.51	Ground	Brian Vogelsbert and Brooke Vogelsberg
51-6969		1.51	Ground	Barbara Blanc
51-2143	0.011	1.49	Ground	George S. Larsen
51-2174	0.011	1.3	Ground	Mark H. and Rose E. Wood
51-2175	0.009	1.3	Ground	Mark H. and Rose E. Wood
51-2183	0.022	2.85	Ground	Grant Stark
			Ground	
			Ground	
51-2949	0.015	3.37	Ground	Wendell A. Hansen
51-4819	0.015	1.45	Ground	Mark B. Anderson
51-4871	0.015	0.93	Ground	Keith J. and Diane H. Anderson
51-1065	0.009	5.24	Ground	F. Milo and Linda S. Muhlestein
51-1189	0.015	10.84	Ground	Marilyn M. and Michael R. Atwood
51-1795		1.45	Ground	Mark B. and Vada A. Anderson
51-1966	0.022	4.53	Ground	Trent M. and Debora C. Muhlestein
			Ground	
			Ground	
51-3416	0.002	1.55	Ground	Paul J. and Barbara Anderson
51-3478		0.45	Ground	Greig and Rosalie Jensen
51-4498	0.012	1.65	Ground	Troy and Lisa Ryan
51-6582	0.015	1.59	Ground	David A. and Jill S. Cloward
51-6614		0.46	Ground	Daren J. and Kristi Rigtrup
51-6624		1.51	Ground	Martin R. Cole and Marie N. Cole Family Trust
51-6625		1.56	Ground	Timmy M. Braithwaite
51-6780		1.73	Ground	Trent M. and Debora C. Muhlestein
51-6906		0.45	Ground	Greig and Rosalie Jensen
51-7902		1.57	Ground	Trent M. and Debora C. Muhlestein
51-8333		0.45	Ground	Daren J. and Kristi Rigtrup
51-8334		0.45	Ground	Daren J. and Kristi Rigtrup
51-8364		1.59	Ground	Daren J. and Kristi Rigtrup
51-7196		0.45	Ground	Waylon and Jacey Beckstrom
51-7232		20.41	Ground	David A. Cloward
51-7343		3.45	Ground	David W and Juda L. Hansen
51-7382		0.9	Ground	Steven K. Davis
51-7465		0.45	Ground	Floyd O. and Lorraine J. Sharp
51-7518		0.5	Ground	Floyd O. and Lorraine J. Sharp
51-7679		0.45	Ground	Martin R. Cole and Marie N. Cole Family Trust
51-7782		1.1	Ground	Steven K. Davis
51-7841		0.48	Ground	Miner Family Trust
51-7876		1	Ground	Waylon and Jacey Beckstrom
51-8683		0.45	Ground	Louise C. Fausett
51-4687	0.015	2.22	Ground	David Davis
51-4965	0.015	0.98	Ground	Thomas R. and Sherri D. Shepherd
51-1102	0.015	0.88	Ground	Arlynn Hone
51-1107	0.015	1.73	Ground	W. T. Parkinson
51-1108	0.007	0.97	Ground	Glen H. Hawkins
51-1140	0.015	0.45	Ground	Keith S. and Elaine W. Hone
51-1158	0.015	1.73	Ground	West Mountain Investments
51-1176		1.44	Ground	Gary H. and Stephanie Galt
51-1197	0.015	1.73	Ground	Jim E. & Glenna M. Spencer
51-1207	0.015	3.46	Ground	Mardell N. & Dixie Sparks
51-1234	0.015	1.73	Ground	Sheron Lynn Thornton
51-1235	0.015	1.73	Ground	Mary Beatrice Wilcox
51-1246	0.015	3.46	Ground	Gerald B. and Lila R. Wylar
51-1428		1.09	Ground	Jeff D. and Natalie A. Williams
51-1579	0.222	35.36	Ground	Lynn H. and Karma Woffinden
51-1738	0.002	1.05	Ground	James L. and Kathleen A. Moon
51-1817		3.66	Ground	Dan R. Williams Family Living Trust
51-1831	0.446	322.9	Ground	Karl H. and Mable H. Hegerhorst
51-1832	0.213	2.34	Ground	Stone Mountain Associates Inc.
51-1885	0.089	11.77	Ground	John E. Shepherd
51-2092	0.045	12.65	Ground	Glen H. and Blanche G. Hawkins
51-2104	0.045	0.94	Ground	George Chaknias
51-2134	0.011	2.76	Ground	Joyce A. and Kenneth A. Johnson
51-2226		3.01	Ground	Jimmy Joe and Jacqueline Caras
51-2231	0.022	1.48	Ground	Pearl L. Hand
51-2357	0.011	2.24	Ground	Spriano and Peggy Ramirez
51-2424	0.001	0.59	Ground	BCR enterprises LTD

51-2425	0.004	0.59	Ground	BCR enterprises LTD
51-2473		3.9	Ground	Dan R. Williams Family Living Trust
51-2474	0.022	2.15	Ground	Milo A. and Judi K. Beckstrom
51-2502	0.002	1.45	Ground	Bernice Woffinden
51-2519	0.015	2.98	Ground	Monte C. Fautin
51-2552	0.011	0.85	Ground	Paul L. & Frances J. Lindsey
51-2555	0.017	1.02	Ground	Darol S. Hawkins and Sharla S. Hawkins
51-2561	0.018	4.27	Ground	Mrs. D. B. Huff
51-2576	0.022	2.68	Ground	Justin Stewart
51-2591	0.007	0.84	Ground	Perry A. Thomas
51-2607	0.111	2.07	Ground	Carol F. Lundell
51-2610	0.013	0.49	Ground	American Oil Company
51-2615	0.067	1.87	Ground	Kent T. Shepherd
51-2641	0.004	1.98	Ground	Annie L. Cook
51-2647	0.002	0.53	Ground	Ned H. and Joanne O. Losser
51-2749		0.99	Ground	Jack D. Larsen Family Trust
51-2956	0.031	2.45	Ground	Bruce and Kandy Rogers
51-3022	0.022	7.4	Ground	Thomas D. and Sue Ellen Atchison
51-3504	0.011	2.01	Ground	Martin W. Grove
51-3659	0.006	1.41	Ground	Joseph Carl Chandler and Maren Chandler
51-3826	0.007	1.62	Ground	Bert Hone
51-4012	0.016	0.93	Ground	Jerry and Bonnie Ferre
51-4260	0.015	1.9	Ground	Jentry C. Lee and Daniel S. Lee
51-4657	0.015	1.59	Ground	Sidney B. Hayward
51-4671	0.015	1.56	Ground	Ardell N. & Melba Jeppsen
51-4939	0.015	1.9	Ground	Darius K. and Jaelyn Simons
51-5016	0.015	2.45	Ground	Ricky M. Beckstrom
51-5019	0.015	1.57	Ground	Kenneth Kelsey
51-5154	0.015	2.35	Ground	Melvin West
51-5618	0.009	2.18	Ground	Dan R. Williams
51-6048	0.015	1.81	Ground	Thomas D. and Sue Ellen Atchison
51-6140		1	Ground	Donald W. & Mary Ann Ludlow
51-6354	0.015	1.59	Ground	Nixon Family Trust
51-6610		1.56	Ground	Chet V. Olsen
51-6647	0.018	3.79	Ground	Gary H. Galt
51-6663		2.15	Ground	Richard S. Ericksen
51-6769		2.01	Ground	Jack D. Larsen Family Trust
51-7289		0.45	Ground	Donald W. & Mary Ann Ludlow
51-7322	0.233	2.81	Ground	Oral and June W. Bartholomew
51-7578		0.45	Ground	Robert A. and Nancy G. Frampton
51-7738		6.16	Ground	Karen W. Williams Family Living Trust
51-8015		1.51	Ground	Jack D. Larsen
51-8016		1.51	Ground	Jack D. Larsen
51-8017		1.51	Ground	Jack D. Larsen
51-8018		1.51	Ground	Jack D. Larsen
a38208		16.48	Ground	BCR enterprises LTD
a38300		16.27	Ground	BCR enterprises LTD
51-1046	0.007	2.76	Ground	Dennis C. and Debra E. Smith
51-1069	0.002	1.59	Ground	Lindon K. and Gayle Joy Reynolds
51-1071	0.01	7.23	Ground	Merril A. and Larue S. Beckstrom
51-1084	0.015	7.48	Ground	Clinton awkins
51-1109	0.014	0.89	Ground	Billy & Linda A. Painter
51-1113	0.015	1.73	Ground	Scott M. Steele
51-1226	0.015	1.73	Ground	Wendell Kay and Jana Lee Williams
51-1260	0.015	1.73	Ground	Andrew Caras
51-1262	0.015	1.73	Ground	Gregg C. and Katherine Nielson
51-1263	0.015	1.73	Ground	Scott C. and Jennifer J. Elliott
51-1296	0.015	1.73	Ground	Sheldon A. and Carol H. Hansen
51-1355	0.015	1.73	Ground	L. Rex Steele
51-1361	0.015	1.73	Ground	Walter T. Stewart
51-1373	0.015	1.17	Ground	Rex L. Hickman
51-1611	0.033	1.56	Ground	James S. Nielsen
51-1848	0.06	31.36	Ground	Newland W. and Alta Mae S. Hansen
51-1844	0.067	2.18	Ground	Jimmie and Jacqueline H. Caras
51-2040	0.025	2.9	Ground	Kenneth & Elaine Peay
51-2059	0.029	0.45	Ground	Clair A. and Lou Ann Dosa Talbot
51-2103	0.007	5.06	Ground	Shannon Ludlow
51-2141		0.73	Ground	Ben and Michelle Marziale
51-2197	0.009	1.47	Ground	Mary E. Selin
51-2198	0.022	0.95	Ground	Mary E. Selin
51-2213	0.089	4.23	Ground	Michael D. and Julie Ann Hales
51-2262	0.1	8.89	Ground	Benjamin Ward of the LDS Church
51-2263	0.089	5.01	Ground	Alma M. Sorenson
51-2407	0.111	12.19	Ground	Thomas W. & Carol Ludlow

51-2413	0.011	1.71	Ground	David L. Beardall
51-2445	0.111	3.6	Ground	Donald R. & Donna L. Hill
51-2479	0.045	2.65	Ground	Elden Verd and Rosalee H. Singleton
51-2488	0.01	5.9	Ground	Olaf H. Adreasen
51-2500		0.64	Ground	Ben and Michelle Marziale
51-2501	0.049	7.37	Ground	Kevin M. Beckstrom
51-2528	0.056	3.54	Ground	Vernor A. Lindsay
51-2534	0.056	13	Ground	Utah County
51-1926		0.48	Ground	Carl C. Lundquist
51-3518	0.011	6.44	Ground	Tony S. and Maureen H. Ericksen
51-3635		1.45	Ground	Walter T. Stewart
51-3636	0.067	2.24	Ground	Walter T. Stewart
51-3637	0.089	2.24	Ground	Walter T. Stewart
51-3639	0.038	2.24	Ground	Walter T. Stewart
51-3640	0.017	2.24	Ground	Walter T. Stewart
51-3605	0.033	3.55	Ground	Bert H. Argyle
51-3824	0.03	2.73	Ground	Burton L. and Susan E. christensen
51-3828	0.011	6.96	Ground	Gary M. Gasper
51-3843	0.011	4.99	Ground	Michael L. & Lola Sharrelyn Hansen
51-3886	0.011	6.67	Ground	Douglas H. & Terry J. Provstgaard
51-4542	0.015	1.53	Ground	William A. Keele
51-6203	0.011	1.51	Ground	Galloway Land & Livestock, LLC
51-6356	0.015	1.59	Ground	Ned F. Penrod
51-6357		1.35	Ground	Vernon Clayton Peterson
51-2646		1.67	Ground	Steven Derk and Christine Wride Winn
51-2652	0.067	2.1	Ground	K. David Roberts Family Trust
51-2653	0.056	2.1	Ground	K. David Roberts Family Trust
51-2669	0.016	1.13	Ground	Harold F. Clayson
51-2679	0.007	0.45	Ground	George L. & Dorian B. Tuckett
51-2680	0.018	1.45	Ground	Ernest Hand
51-2681	0.015	1.67	Ground	Dean Hansen and Janine Hansen
51-2751	0.033	1.79	Ground	Bert H. Argyle
51-2830	0.013	1.53	Ground	Keith S. Hone
51-2941	0.025	1.53	Ground	Jon K. Mitchell
51-2955	0.031	1.76	Ground	Nadine O. Roberts
51-4755	0.015	1.81	Ground	Thomas W. and Gloria D. Richardson
51-4857	0.015	1.59	Ground	D. Lawrence & Naomi D. Henroid
51-4881	0.015	1.59	Ground	David A. Wilson
51-5172	0.015	1.82	Ground	Kenneth B. Peay
51-5254	0.015	3.29	Ground	Newland W. Hansen
51-5259	0.015	5.23	Ground	K. David Roberts Family Trust
51-7090		1.5	Ground	James Randy and Bethene Jasper
51-6386	0.015	2.57	Ground	Nyle G. and Collette C. Russell
51-6412	0.1	0.79	Ground	Shannon Ludlow
51-6430	0.022	1.42	Ground	Steve D. and Nancy H. Howard
51-6436	0.008	1.79	Ground	Ronald C. Oveson
51-6465	0.015	1.87	Ground	Lloyd F. Nilson
51-6627		1.73	Ground	Donald D. Lundell
51-6789		1.39	Ground	Wayne C. Miller
51-6790		1.57	Ground	Carl L. Shepherd
51-68	0.089	1.39	Ground	Raymond W. Jensen
51-6874		20.6	Ground	Utah County
51-7925	0.002	1.6	Ground	Jason L. and Janis F. Taylor
51-8188		3	Ground	Mike Holman
51-8276		0.73	Ground	Matthew and Leslie Urmston
51-7091		1.5	Ground	Brett M. and Doraleen O. Penrod
51-7207		0.45	Ground	Walter T. Stewart
51-7248		1.56	Ground	Brett L. and Rebecca S. Davis
51-7249		1.56	Ground	Darren and Gayle Baum
51-7255		1.56	Ground	Tom and Christina L. Buckley
51-7256		3.07	Ground	Cleon Nielson
51-7257	0.016	1.56	Ground	Kent A. Brenneman and Kristen N. Brenneman
51-7318		0.45	Ground	Walter T. Stewart
51-7407		0.84	Ground	Marion and Patricia Moore Wride
51-7546	0.015	2.51	Ground	Lundell Family Trust
a42072		16.35	Ground	Mike Holman
51-1117	0.011	0.92	Ground	Robert J. and Suzanne B. Stevens
51-1265	0.015	0.7	Ground	Leo Steele
51-1886	0.054	11.53	Ground	Lavon E. & Addie L. Payne
51-1887	0.027	0.84	Ground	Lavon E. & Addie L. Payne
51-1888	0.022	2.48	Ground	Lavon E. & Addie L. Payne
51-2645	0.007	1.73	Ground	Denzil Wride
51-3709		4.99	Ground	N. L. Topham
51-3860	0.009	1.4	Ground	Jerry Grover

51-4005	0.011	6.62	Ground	Ronald Brinkerhoff and Marne Brinkerhoff
51-4037		0.81	Ground	Kelly J. Dutton
51-4094	0.013	2.71	Ground	Nancy P. and Steven T. Stone
51-4186	0.015	1.56	Ground	Nancy P. and Steven T. Stone
51-4196	0.015	1.53	Ground	Tom Willis
51-4502		1.73	Ground	Ray W. and Linda J. Virchow
51-4530	0.015	1.35	Ground	Charles B. or Lana Mitchell
51-7162		0.45	Ground	Ken Wade
51-7549		1.07	Ground	N. L. Topham
51-7550		1.07	Ground	N. L. Topham
51-7574		0.95	Ground	Matt J. and Deborah A. Watters
51-7646	0.001	0.58	Ground	Clair O. Anderson Farms Inc.
51-4908	0.015	1.73	Ground	Willy Reimscissel
51-4909	0.015	1.61	Ground	Willy Reimscissel
51-4969	0.015	2.26	Ground	Blaine M. Wride
51-6101		1.45	Ground	Benjamin R. and Alison R. Young
51-6163	0.006	2.01	Ground	Fernando Garcia
51-6483	0.015	1.7	Ground	Ned F. Penrod
51-6518	0.015	2.01	Ground	Pepper Knight Penrod
51-6648		3.75	Ground	Sumsion Farms, L.C.
51-6665		1.28	Ground	Lynn A. Baadsgaard
51-6670		1.59	Ground	Vivian Reimscissel
51-6936	0.011	4.76	Ground	Lynn A. & Rachel Baadsgaard
51-6937	0.004	0.84	Ground	Lynn A. & Rachel Baadsgaard
a23015		3.95	Ground	Bryan or Carol Draper
Private Benjamin/Lakeshore Subarea				
Ground Water Rights	Subtotal	4,193	ac-ft	Strawberry High Line Canal Company,
Irrigation Company Benjamin/Lakeshore Subarea Ground Water Rights & Shares				
Subtotal	Subtotal	1,892	ac-ft	Ground Lake Shore Irrigation Company, Spanish Fork South Irrigation Company, Spanish Fork West Field Irrigation Company, Strawberry High Line Canal Company
Total Benjamin/Lakeshore Subarea Ground Water Rights		6,085	ac-ft	

Surface Water Rights

Water Right Number	Change #	CFS	ACFT		Name
a22674a			5.69	Surface	Bayview Subdivision Plat "A" HOA
a22674b			5.69	Surface	Bayview Subdivision Plat "A" HOA
a22674c			8.9	Surface	Bayview Subdivision Plat "A" HOA
a22674d			9.01	Surface	Bayview Subdivision Plat "A" HOA
a22674e			4.22	Surface	East Jordan Irrigation Company
a22674f			8.57	Surface	Bayview Subdivision Plat "A" HOA
a22674g			3.96	Surface	Bayview Subdivision Plat "A" HOA
a22674h			3.96	Surface	Bayview Subdivision Plat "A" HOA
a22674i			3.96	Surface	Bayview Subdivision Plat "A" HOA
a22674j			3.96	Surface	East Jordan Irrigation Company
a22674k			1.02	Surface	East Jordan Irrigation Company
a22674l			10.44	Surface	Bayview Subdivision Plat "A" HOA
a22674m			10.03	Surface	Bayview Subdivision Plat "A" HOA
a22674n			4.89	Surface	East Jordan Irrigation Company
a22674o			8.55	Surface	Bridgepoint LLC
a22674p			8.55	Surface	Bayview Subdivision Plat "A" HOA
a22674q			3.96	Surface	Bayview Subdivision Plat "A" HOA
51-7405			22.39	Surface	South Jordan Canal Company
53-1356			123.83	Surface	South Jordan Canal Company
53-1460			135.52	Surface	East Jordan Irrigation Company
51-7405			22.39	Surface	South Jordan Canal Company
53-1356			123.83	Surface	South Shore Farms
53-1460			135.52	Surface	East Jordan Irrigation Company
53-1635			38.45	Surface	Lance K. and Marla K. Robinson
53-1636			12.81	Surface	Lance K. and Marla K. Robinson
53-1729			18.41	Surface	Lance K. and Marla K. Robinson
53-1567			18.41	Surface	Lance K. and Marla K. Robinson
a38678			502.9	Surface	Gerald N. Andersen Living Trust
51-6872			0.45	Surface	Arnold H. Mellor
51-3638	0.022		2.24	Surface	Walter T. Stewart
a23015			3.95	Surface	Bryan or Carol Draper
Private Benjamin/Lakeshore Subarea					
Surface Water Rights	Subtotal		1,266	ac-ft	Surface

Irrigation Company Benjamin/Lakeshore Subarea Surface Water Rights & Shares	7,823	ac-ft	Surface	Duck Creek Irrigation Company, Lake Shore Irrigation Company, Spanish Fork South Irrigation Company, Spanish Fork West Field Irrigation Company, Strawberry High Line Canal Company
Total Benjamin/Lakeshore Subarea Surface Water Rights	9,089	ac-ft		
TOTAL BENJAMIN/LAKESHORE SUBAREA WATER RIGHTS	15,174	ac-ft		

Payson MNWA Subarea Water Rights

Ground Water Rights

Water Right Number	Change #	CFS	ACFT	Type	Name
51-1927		0.014	1.45	Ground	Paul B. and Kathleen C. Hansen Family Trust
51-5842		0.015	1.58	Ground	Terry H. Balzly
51-6691			1.98	Ground	K. S. Mortensen Trust
51-1209		0.045	21.23	Ground	Ralph Balzly
51-1776		0.004	1.68	Ground	Frank Hansen
51-1777		0.004	0.5	Ground	Frank Hansen
51-1915		0.111	6.44	Ground	Paul B. and Kathleen C. Hansen
51-2091			3.15	Ground	Kit S. and tiffany W. Lange
51-2380		0.089	18.8	Ground	Ted Eugene and Kim Creer Hansen
51-2381		0.011	1.4	Ground	Ted Eugene and Kim Creer Hansen
51-2391		0.111	20	Ground	George W. and Dorothy S. Forester
51-2392		0.134	20	Ground	George W. and Dorothy S. Forester
51-2394		0.29	60	Ground	George W. and Dorothy S. Forester
51-2396		0.111	21.4	Ground	George W. and Dorothy S. Forester
51-2397		0.045	20	Ground	George W. and Dorothy S. Forester
51-2398		0.067	20.42	Ground	George W. and Dorothy S. Forester
51-2499		0.223	3.69	Ground	Ralph E. Balzly
51-2526		0.022	2.22	Ground	Julia Herbert
51-2564		0.056	24.07	Ground	George W. and Dorothy S. Forester
51-2565		0.033	24.07	Ground	George W. and Dorothy S. Forester
51-2567		0.111	47.03	Ground	George W. and Dorothy S. Forester
51-2575		0.045	2.67	Ground	Lynn L. and Janet H. Hazel
51-2604		0.022	3.81	Ground	George Swenson
51-4622		0.013	1.15	Ground	Ed Beddoes
51-4667		0.015	1.65	Ground	John D. and Marilyn H. Anderson
51-5486		0.015	1.65	Ground	Paul A. Swenson
51-6942			8	Ground	Charles Sigler
51-6971		0.015	1.5	Ground	Ronald T. Ludlow
51-6998			1.51	Ground	Charles Sigler
51-7579		0.1	0.94	Ground	John Brimley
51-7683			2.8	Ground	Ted Eugene and Kim Creer Hansen
51-2978		0.022	1.4	Ground	Ted Eugene and Kim Creer Hansen
51-2979		0.045	5.6	Ground	Ted Eugene and Kim Creer Hansen
51-6016		0.51	22.08	Ground	Ralph and Ethel Mae Balzly
51-6288		0.015	1.59	Ground	John P. and Ann Fullerton
51-6289		0.015	1.59	Ground	Patrick E. and Sandra Doty
51-7683			2.8	Ground	Ted Eugene and Kim Creer Hansen
51-7726			1.4	Ground	Ted Eugene and Kim Creer Hansen
51-7778			6.58	Ground	Ronald T. and Colleen H. Ludlow
51-7780			2.35	Ground	Ronald T. and Colleen H. Ludlow
51-7818			804	Ground	Millard N. and Zoe M. Balzly
51-7933		0.015	1.95	Ground	Dallas L. Swenson
51-8318			2.04	Ground	Matthew L. and Brandi C. Scott
51-8322			1.57	Ground	Ronald T. and Colleen H. Ludlow
51-8448			0.96	Ground	Matthew L. and Brandi C. Scott
51-1924		0.067	3.85	Ground	Ray K. Dixon
51-1925		1.974	635.92	Ground	Ray K. Dixon Ranches, LLC
51-2049		0.5	56	Ground	Ray K. Dixon
51-2088		0.015	0.87	Ground	Vernon H. and Doris D. Marshall
51-2388		0.045	8.73	Ground	George W. and Dorothy S. Forester
51-2389		0.022	8.14	Ground	George W. and Dorothy S. Forester
51-2390		0.167	20	Ground	George W. and Dorothy S. Forester
51-2393		0.134	20	Ground	George W. and Dorothy S. Forester
51-2395		0.067	21.54	Ground	George W. and Dorothy S. Forester
51-2556		0.056	6.31	Ground	Joseph A. Tippetts
51-2566		0.033	13.98	Ground	George W. and Dorothy S. Forester
51-2608		0.111	3.98	Ground	Carl F. Lundell
51-4244		0.015	1.79	Ground	Elizabeth Talbot Living Revocable Trust
51-4567		0.015	1.45	Ground	Steven Johnson
51-4779		0.015	1.51	Ground	Verna J. Rohback
51-4847		0.015	2.29	Ground	Blaine Loveless
51-4970		0.009	1.4	Ground	Ray K. Dixon Ranches, LLC
51-2625		0.033	14.17	Ground	Byron Cloward
51-2798		0.1	11.23	Ground	Kenneth J. Young

51-2800	0.016	9.63	Ground	Kenneth J. Young
51-2801	0.015	0.06	Ground	Kenneth J. Young
51-3678	0.045	6.96	Ground	Kenneth J. Young
51-3830	0.011	2.98	Ground	Rex Hawkins
51-6057		1.59	Ground	Amy L. Boardman
51-6324		21.38	Ground	Wendell Howard Barney
51-6480		4	Ground	Darol & Sharla Hawkins
51-7661		8	Ground	Patrick E. and Sandra Doty
51-7663		9.5	Ground	Ferris J. Bowler
51-8403		20.25	Ground	Harold E. Davis Family Limited Partnership
51-4971	0.017	2.73	Ground	Ray K. Dixon
51-4972	0.056	3.4	Ground	Ray K. Dixon
51-4973	0.056	3.4	Ground	Ray K. Dixon
51-4974	0.011	1.4	Ground	Ray K. Dixon
51-4975	0.017	2.73	Ground	Ray K. Dixon Ranches, LLC
51-4976	0.009	1.4	Ground	Ray K. Dixon Ranches, LLC
51-5161		1.49	Ground	Nicholas B. and Jill C. Hanks
51-6644		2.16	Ground	Nicholas B. and Jill C. Hanks
51-8650	0.026	8.5	Ground	Ray K. Dixon Ranches, LLC
51-1538	0.92	192.44	Ground	Lucena B. Schaerrer Family Living Trust
51-2636		0.59	Ground	Mary Lou Daley
51-2696	3	120	Ground	George C. Cowan
51-2894		0.9	Ground	Mary Lou Daley
51-2917	0.022	8	Ground	George H. Wilson
51-3509	0.056	24	Ground	George H. Wilson
51-3820	0.111	47.42	Ground	George H. Wilson
51-1883	0.134	1.2	Ground	George A. Schaerrer
51-1982	0.009	2.8	Ground	Edward R. Stevens
51-2298	0.25	16	Ground	Edward R. Stevens
51-2446	0.033	3.73	Ground	Pacific Coast Joint Stock Land Bank
51-2545	0.25	44	Ground	Everitt P. Richmond
51-5282	0.015	1.45	Ground	Grant S. Schaerrer
51-6014		1.49	Ground	Karolee Koller
51-7992		0.09	Ground	Mary Lou Daley
51-7993		0.09	Ground	Mary Lou Daley
51-7994		0.09	Ground	Mary Lou Daley
51-7995		0.09	Ground	Mary Lou Daley
51-7997		1.27	Ground	Mary Lou Daley
51-7998		1.27	Ground	Mary Lou Daley
51-7999		1.27	Ground	Mary Lou Daley
51-8000		1.27	Ground	Mary Lou Daley
51-8001		1.29	Ground	Mary Lou Daley
51-8002		1.29	Ground	Mary Lou Daley
51-8003		1.29	Ground	Mary Lou Daley
51-8004		1.29	Ground	Mary Lou Daley
51-8084		0.45	Ground	The Ackerman Family Trust
51-8085		1.6	Ground	Jon K. Ackerman
51-8086		4.49	Ground	Mary Margaret Adams Revocable Trust
51-8146		0.45	Ground	Zeeman Acres LLC
51-8146		0.45	Ground	Zeeman Acres LLC
51-8148		0.45	Ground	The Bonnie J. Wells Revocable Trust
51-8149		0.45	Ground	Jay and Tracy Mansanarez
51-8150		0.45	Ground	Zeeman Acres LLC
51-8151		0.45	Ground	T.R.R. Properties, LLC
51-8164		0.45	Ground	Jack M. Taylor and Amy Taylor
51-8395		47.77	Ground	Scenic Mountain Partners, LLC
51-4038	0.02	2.56	Ground	Willy and Vivian G. Riemschissel
51-7340		1.91	Ground	Thomas G. and Ruth M. Rogers
51-1092	0.015	1.73	Ground	Paul Liston
51-1288	0.015	3.83	Ground	Ivan Hawkins
51-1556	0.11	0.04	Ground	Stephen C. and Sue Ann Taylor
51-1652	0.015	1.58	Ground	Norman R. and Susan M. Henke
51-1919	0.001	0.72	Ground	Homer and Margaret D. Beardall
51-2246	0.002	0.95	Ground	Stanford and Melanee Sainsbury
51-2260	0.011	2.74	Ground	Delphin Hiatt
51-2592	0.62	1.5	Ground	Daniel L. and Marjorie D. Bishop
51-2810	0.015	2.01	Ground	Stanford and Melanee Sainsbury
51-2811	0.045	1.72	Ground	Lynn T. and Lorraine M. Wride
51-2959	0.015	0.89	Ground	James D. Bishop
51-3617	0.013	1.73	Ground	Duane and Jennette Buss

51-3641		0.14	Ground	John Milton Beck
51-3646		1.11	Ground	Bud and Chlodene M. Reid
51-4071	0.05	4.67	Ground	Homer and Margaret D. Beardall
51-4661	0.015	1.56	Ground	David G. Larson
51-4710	0.015	1.59	Ground	Christopher Meek
51-6175	0.015	1.53	Ground	Julie Sainsbury
51-6176	0.015	1.45	Ground	Kurt W. & Colleen C. Goodman
51-6186	0.015	1.59	Ground	Sterling B. and Cindi Sainsbury
51-6703		1.7	Ground	Barry J. Oates
51-6713		1.43	Ground	Jay M. and Vivian F. Simpson
51-7054		0.5	Ground	Lorin and Susan Jensen
51-7055		0.5	Ground	David and June Trent
51-7056		0.5	Ground	Edward R. and Kristing J. Lee
51-7057		0.5	Ground	Demonte Phelps
51-7326		1	Ground	Elaine Partridge
51-7619		0.45	Ground	Sherman Clark and Callee P. Bronson
51-7783		1.5	Ground	Karl B. and Ronda L. Rasmussen
51-7838		1.75	Ground	Alan and Joan Landes
51-7862		1.17	Ground	Frederico A. and Emma Victoria Lier
51-8032		0.45	Ground	James Matthew and Rylee Reid
51-8289		0.45	Ground	Daniel L. and Marjorie D. Bishop
51-8670		0.45	Ground	Israel Barlow
51-8176	a28573	1	Ground	Duane and Jennette Buss
51-1421	0.015	0.48	Ground	Joseph M. and Marcy L. Pledger
51-1478		1.96	Ground	Norman Atkin and Jodee G. Atkin
51-2643	0.004	0.87	Ground	George C. Coawn
51-3014	0.011	1.62	Ground	William O. & Linda L. Jackson
51-3015	0.022	1.07	Ground	Elma P. & M. Aloha Mize
51-3036	0.067	8.85	Ground	Blue Horizons, LLC
51-3657		1.3	Ground	Thomas Craig Sumsion & Becky Sumsion
51-3662	1	162.8	Ground	Judy A. Snow
51-3887	0.013	1.73	Ground	Joann Peay
51-4458	0.015	2.18	Ground	Silcox LC
51-4529	0.013	1.65	Ground	Kenneth R. Buys
51-4562		0.45	Ground	Stephen D. and Dixie J. Kirkwood
51-4630	0.026	3.3	Ground	John D. and Flora Ethington
51-6759		0.34	Ground	Flinders Family Trust
51-6840		1.73	Ground	John Douglas and Laura Louise Evans
51-6894		0.8	Ground	Nicholas Leippe
51-1953	0.229	44.69	Ground	Edward L. Kearl
51-2362		12.54	Ground	Jay Russell Isaac
51-2513	0.22	9.85	Ground	John D. and Flora Ethington
51-2593	0.167	13.21	Ground	Wilfred E. and Nola J. Bradshaw
51-6078	0.015	1.62	Ground	Eldridge Travis
51-7751		0.45	Ground	Jason Warren Wright
51-7752		0.45	Ground	Panda Properties L.L.C.
51-7753		0.48	Ground	Randy B. and Luann S. Hanks
51-7754		0.45	Ground	C & P Schramm Trust
51-7881		2.04	Ground	Panda Properties L.L.C.
51-7941		0.83	Ground	Stephen D. and Dixie J. Kirkwood
51-8142		2.7	Ground	Jay Russell Isaac
51-8143		0.45	Ground	Alan and Joan Landes
51-7176		1.45	Ground	Nathan Ted Ahlin
51-7226		0.45	Ground	Jeff Mitchell
51-7279		3.31	Ground	Blaine W. Mitchell
51-7456		0.45	Ground	Jones B. Koyle
51-7544		1.45	Ground	John P. Brozovich
51-8522		0.84	Ground	Gappmayer Family Trust
51-1096	0.015	1.73	Ground	Stephanie Harrison
51-1334	0.015	1.73	Ground	Justin and Camille Jensen
51-1600	0.53	1.44	Ground	Frederick T. and Sarah O. Baird
51-1849	0.007	1.04	Ground	Davic A. and Stacie L. Conrad
51-1850	0.067	4.59	Ground	Rebecca A. Twede
51-2010	1.003	425	Ground	State of Utah Emergency Relief Administration
51-2455	0.5	17.99	Ground	Carl O. Nelson
51-2456	0.111	8.54	Ground	Carl O. Nelson
51-2518	0.022	2.62	Ground	Clay Boardman
51-2605	0.017	1.16	Ground	Federal Land Bank of Sacramento
51-2740	0.25	132.76	Ground	Elmo J. Carlisle
51-3888	0.045	7	Ground	Arda Patrice Oryal

51-3891	0.056	2.8	Ground	Gerome I Rasmusen
51-4705	0.017	1.16	Ground	Federal Land Bank of Sacramento
51-5385	0.015	3	Ground	Dan L. Wrght Heber LLC
51-4267	0.015	1.67	Ground	Ronald L. and Donna B. Price
51-4268	0.015	2.77	Ground	Georme I. Rasmussen
51-4271	0.015	1.77	Ground	Richard S. Wilson
51-4692	0.045	2.56	Ground	Robert William Wood
51-4840	0.015	2.18	Ground	Alvin O. Price
51-4864	0.067	1.64	Ground	Dan L. Wrght Heber LLC
51-4867	0.015	2.69	Ground	Dan L. Wrght Heber LLC
51-4948	0.015	3.08	Ground	Dan L. Wrght Heber LLC
51-5009	0.015	1.95	Ground	Frederick T. Baird
51-5158	0.015	2.71	Ground	TRI Wilson Ranch, LLC
51-5350	0.015	10.86	Ground	Dan L. Wrght Heber LLC
51-6904		1.73	Ground	Norman R. and Julie R. Gividen
51-6915		1.73	Ground	James E. and Karen R. Finley
51-7031		1.45	Ground	Clinton B. and Michelle D. Proctor
51-7032		1.45	Ground	Michael L. and Michelle Poulson
51-7033		1.45	Ground	Dustin C. Rose and Tani Rose
51-7136		0.45	Ground	Karl Shane and Sherri L. Green
51-6127		0.45	Ground	Robert F. and Patricia Brothwell
51-6279		1.73	Ground	Edward R. and Deedra /Scott
51-6536	0.015	1	Ground	Scott J. and Diane G. Bartlone
51-6558		0.42	Ground	Robert F. and Patricia Brothwell
51-6575		1.73	Ground	Clay and Elizabeth Boardman
51-7569		0.87	Ground	Flinders Family Trust
51-7570		0.87	Ground	Bradley W. and Sloane M. Jones
51-7757		1.45	Ground	Alan J. Long and Gayle L. Long Family Trust
51-7815		1	Ground	Ben and Camille Mangelson
51-7903		0.38	Ground	K. David Roberts Family Trust
51-7904		7.57	Ground	Alan J. Long and Gayle L. Long Family Trust
51-8035		8.98	Ground	Alan J. Long and Gayle L. Long Family Trust
51-8175		9	Ground	Fred Broadbent and Carol S. Broadbent
51-8196		1.74	Ground	Allece Luke Boardman
51-8211		1	Ground	Sidney Baird
51-8300		0.5	Ground	Bartlome Family Trust
51-7137		0.45	Ground	Douglas J. Balzly
51-7138		0.45	Ground	Dale E. and Beth Jensen
51-7139		1.28	Ground	Karl Shane and Sherri L. Green
51-7140		0.42	Ground	Joy A. Hunter
51-7141		1.28	Ground	Dale E. and Beth Jensen
51-7348		0.3	Ground	Scott J. and Diane G. Bartlone
51-8532		0.45	Ground	Cory S. and Jaisha B. Christensen
51-8564		132.76	Ground	Cargill Family Trust
51-8596		2	Ground	David W. and Sandra Holliman
54-1130		79.16	Ground	Utah Valley Ranchers L.L.C.
51-1902	0.033	1.45	Ground	LSC Real Estate LLC
51-2019	0.04	4.55	Ground	Clay Ashworth
51-2048	0.004	2.29	Ground	Hazel T. Baird
51-2295	0.022	4.31	Ground	Thad B. and Larella L. Steinfeldt
51-4489	0.015	0.28	Ground	LSC Real Estate LLC
51-5183	0.015	1.4	Ground	Jared and Shannon M. Dehart
51-6637		2.15	Ground	Melvin and Julie Blaney
51-6638		1.96	Ground	Melvin and Julie Blaney
51-6702		2.03	Ground	Dennis D. Sperry
51-6764		0.28	Ground	Thad B. and Larella L. Steinfeldt
51-6766		2.35	Ground	Kent and Shirley Bingham
51-6806		1.22	Ground	Theresa Jane Echols
51-7333		0.45	Ground	Gregg B. and Susan L. Peterson
51-7334		0.5	Ground	Kent L. and Deborah A. Curtis
51-7335		0.5	Ground	Heath Neil Jolley and Jennifer Lynn Jolley
51-7351		1.51	Ground	Dennis Ray and Sherry Dunn
51-7352		1.48	Ground	D. Clark and Pamela Turner
51-7354		1.51	Ground	Christopher J. and Lynette C. Leach
51-7356		0.95	Ground	Wade G. and Loreen A. Woolstenhulme
51-7357		1.51	Ground	The Theresa Jane Echols
51-7358		1.51	Ground	Gregory E. and Penny A Craner
51-7359		1.51	Ground	OLEA, LLC
51-7361		1.45	Ground	David Rogers
51-7365		1.53	Ground	Steven W. and Karen T. Hutchison

51-7367		0.51	Ground	Bryan Jay and Cheryl Denise Cardoza
51-7368		1.51	Ground	David and Kimberli Romanek
51-7370		1.51	Ground	Patrica L. and James D. Banner
51-7372		1.51	Ground	Dee W. and Tammy C.E. Henderson
51-7373		1.53	Ground	Danny J. and Karen Loveless
51-7374		1.51	Ground	Tim and Amy Ewell
51-7375		1.53	Ground	Tyler H. and Tammy R. Orton
51-7376		1.51	Ground	Gilbert G. and Eileen N. Litchfield
51-7378		1.51	Ground	Ronald K. and Karla D. Adams
51-7390		1	Ground	LSC Real Estate LLC
51-1128	0.1	4.76	Ground	L. H. Coker
51-1196	0.023	16.65	Ground	H. H. and Lula Blair Farr
51-2622	0.033	1.09	Ground	Clay Ashworth
51-2973	0.007	0.56	Ground	LSC Real Estate LLC
51-3655	0.011	1.77	Ground	Steven Blair Farr
51-4095	0.015	1.62	Ground	Deral W. Farr
51-4192	0.015	1.87	Ground	Dennis D. and Mari L. Sperry
51-6053	0.015	2.49	Ground	Jeff M. and Janet E. Barker
51-6450	0.015	1.85	Ground	Kent M. & Shirley Bingham
51-7673		0.59	Ground	Matthew L. Kalmar
51-7924		1.25	Ground	L. S. Carson Mink Ranch
51-8048		0.5	Ground	Gregory T. Lupus
a31499		1.45	Ground	Jared Dehart
a32845		6.1	Ground	Jared N. and Shannon M. Dehart
a32846		1.95	Ground	Jared N. and Shannon M. Dehart
a32850		20.11	Ground	Jared N. and Shannon M. Dehart
a32851		4.15	Ground	Jared Dehart
a32852		1.45	Ground	Jared and Shannon M. Dehart
a32853		1.45	Ground	Jared Dehart
a32854		1.45	Ground	Jared Dehart
a32856		1.45	Ground	Jared Dehart
a36307		2	Ground	Jared N. and Shannon M. Dehart
51-1093	0.015	10.84	Ground	H. B. D. LLC
51-1446	0.015	1.64	Ground	Willaim N. Berry
51-1620	0.015	2.65	Ground	Miss June Berry
51-2077		0.51	Ground	Ned and Linda Fausett
51-2730	0.1	4.22	Ground	Ernest C. Brinkerhoff Trust
51-2835	0.043	1.59	Ground	Rex J. & Connie J. Wilkerson
51-2911	0.25	40	Ground	BJMKL Enterprises LTD
51-3001	0.015	0.45	Ground	Jared A. and Darann S. Smith
51-3028	0.112	3.02	Ground	Jeremy Hardy
51-3417	0.067	6.85	Ground	Richard B. Boulton
51-3856	0.015	2.72	Ground	Calvin E. & Colleen L. Ewell
51-3864	0.013	1.73	Ground	H.B.D., LLC
51-3870		1.75	Ground	Tom C. and Jerelyn M. Sorensen
51-5534	0.015	1.05	Ground	Paul Rindlisbacher
51-5817	0.015	2.54	Ground	Gordon R. and Jennifer D. Mc Kervey
51-6158	0.015	3	Ground	H.B.D., LLC
51-6322	0.014	1.73	Ground	Leonard and Susan Howe
51-6323	0.015	1.32	Ground	Manuel S. and Sandra O. Tafoya
51-6327	0.015	1.23	Ground	Kelly D. and Rebecca Morganson
51-6481		0.59	Ground	Aaron D. Sabin
51-6565		1.73	Ground	The Larsen Family Trust
51-6570		0.8	Ground	Dan G. and Kris A. Jepperson
51-6576		1.53	Ground	Natalie T Ralph
51-6584		1.56	Ground	Neil J. and Joan D. Flinders
51-6586		1.84	Ground	Carlsen Family Trust
51-6591		1.9	Ground	Calvin Workman
51-6592		2.15	Ground	Chad and Julie Ann Atkinson
51-6598		1.62	Ground	Tad and Joann Jolley
51-6609		1.44	Ground	Nathan and Amelia A Powers
51-6635		1.08	Ground	B. Thomas Barnes and Kathleen Barnes
51-6700		1.62	Ground	Robert D. and Lea T. Vigesaa
51-6714		1.62	Ground	Jeffrey E. Ethington
51-6762		1.17	Ground	Dan G. and Kris A. Jepperson
51-6774	0.015	1.51	Ground	Elise Rice Bird
51-6795		1.59	Ground	Fausett Family Limited Partnership
51-6890		0.22	Ground	Tom C. and Jerelyn M. Sorensen
51-6923		0.51	Ground	Terry K. Kester
51-6924		0.51	Ground	Travis Hansen

51-6925		0.51	Ground	Terry K. Kester	
51-6926		0.51	Ground	Loir A. Hardy	
51-7166		0.45	Ground	Robert D. and Aleesa B. Simons	
51-8060		9	Ground	Aaron Westberg and Julianna Westberg	
51-8061		9	Ground	Kevin E and Heather A Nelson	
51-8066		9	Ground	Scott J. Cowley and Gloria Cowley	
51-8122		0.45	Ground	Brent Lee and Amanda Thurman	
51-8123		0.45	Ground	Kristie Lee Hansen Trust	
51-8124		0.45	Ground	Jeffrey W. and Kristie Lee Hansen	
51-8125		0.45	Ground	Earnest C. Brinkerhoff Trust	
51-8126		0.45	Ground	Earnest C. Brinkerhoff Trust	
51-8288		0.59	Ground	Grant Echols and Theresa Echols	
51-8428		0.45	Ground	Triple Z Ranches, LLC	
51-8026	a34870	0.5	Ground	Curtis Byron Sorensen	
51-8225	a32847	7	Ground	Leo K. and Betty Jo Sharp	
51-8226	a32848	7	Ground	Jared N. and Shannon M. Dehart	
51-8224	a32849	7	Ground	Brady Durrant and Jacquell Durrant	
55-5888	a33926	0.5	Ground	Sunset Rail Company	
51-8337	a34676	0.5	Ground	Tom Sorensen	
51-1148		0.015	1.73	Ground	A. H. Bishop
51-1164		0.015	1.53	Ground	Rindlisbacher Family Trust
51-1191		0.025	1.18	Ground	Carl J. Nelson
51-1838		0.033	2.03	Ground	Stephen F. & Elizabeth Laney
51-1840		0.033	2.03	Ground	Stephen F. & Elizabeth Laney
51-4033		0.013	1.73	Ground	Dennis L. and Debbie L. Bishop
51-4182		0.015	1.45	Ground	Richard Brande
51-4589		0.015	1.95	Ground	Gary A. Hathaway
51-4764		0.015	1.59	Ground	Frank M. & Janet B. Tippetts
51-6167		0.015	1.73	Ground	Craig E. and Jane A. Wright
51-6306		0.015	0.87	Ground	Byron D. Haskell and Janell Haskel
51-8023			1.67	Ground	Todd Lloyd
51-1045		0.011	0.85	Ground	Theone W. and Kathleen G. Curtis
51-2302		0.001	0.84	Ground	William Frederick Tew
51-2626		0.013	1.87	Ground	Wade D. Oldham and Sherri H. Oldham
51-2821		1.15	114.4	Ground	Stephen F. & Elizabeth Laney
51-4890		0.015	3	Ground	Kathleen Curtis
51-4937		0.015	1.64	Ground	Cole Fowler
51-7295			0.45	Ground	Lorna F. Pymm Revocable Trust U/A
51-7296			0.45	Ground	Kenneth M. Coleman
51-7297			0.45	Ground	Ryan and Jamie Bascom
51-7298			0.45	Ground	Mardell and Heidi Cheney
51-7299			0.45	Ground	Joseph Allon and Karen A. Tanner
51-7300			0.45	Ground	Troy Simpson
51-1162		0.01	0.76	Ground	Doyle G. and S. Penny Nielseon Family Trust
51-1187		0.015	1.73	Ground	Larry B. and Susan S. Fuller
51-1218			0.22	Ground	Robert B. Perry
51-1243		0.015	1.73	Ground	Robert P. Finch
51-1254		0.015	1.73	Ground	Dan L. Wright Heber LLC
51-1269		0.015	5	Ground	Corp. of the Presiding Bishop of the LDS Church
51-1790		0.007	1.45	Ground	Robert E. Finch
51-1791		0.004	1.5	Ground	Robert E. Finch
51-1829			25.5	Ground	Oldham Enterprises LLC
51-1841			6	Ground	Oldham Enterprises LLC
51-1921		0.1	22.07	Ground	Hiatt Family LC
51-2071		0.111	1.99	Ground	Jesse Hall
51-2264		0.022	1.6	Ground	Elwood Loveless
51-2405		0.089	7.18	Ground	Leon A. and Wilma M. Monson
51-2820		1.31	114.4	Ground	Stephen F. & Elizabeth Laney
51-2850		0.031	2.88	Ground	Max J. and Rugh H. Peart
51-4020		0.159	1.79	Ground	Paul A. Finch
51-4036		0.022	1.55	Ground	Ronald M. and Nancy Pert
51-4861			0.34	Ground	Robert B. Perry
51-5326			1.22	Ground	Robert B. Perry
51-5431		0.015	1.16	Ground	Kevin & Wendy Jensen
51-6036		0.1	20	Ground	Corp. of the Presiding Bishop of the LDS Church
51-6102		0.015	1.45	Ground	Thomas F. Larson
51-6227		0.015	1.73	Ground	Robert P. Finch
51-6376			0.59	Ground	Fred Barber
51-6399			1.59	Ground	Theo R. and Patricia Orchard
51-6441		0.015	1.59	Ground	Hoby N. Metz

51-6639		1.45	Ground	Rodney and Jane Ann Carr
51-6758	0.015	6.62	Ground	Joanne Moore
51-7060		0.51	Ground	Hiatt Family LC
51-7061		0.51	Ground	Corey D. and Lisa D. Jones
51-7076		0.51	Ground	Thomas Guy Larson
51-7130		0.45	Ground	Robert M. and Nancy Peart
51-7167		0.59	Ground	Robert B. Perry
51-7168		0.59	Ground	Ralphand Ronda Bennett
51-7236		0.02	Ground	Wendell C. and Brenda K. Wilde
51-7600		3.25	Ground	Loye Ann Neil Family Trust
51-7606		1.59	Ground	Wendell C. and Brenda K. Wilde
51-7607		1.43	Ground	Wendell C. and Brenda K. Wilde
51-7608		6.5	Ground	Dennis R. and Jodi Lynn Christensen
51-7609		6.5	Ground	Loye Ann Neil Family Trust
51-7675		3.25	Ground	Loye Ann Neil Family Trust
51-7739		0.5	Ground	Thomas H. Grieve
51-8243		0.59	Ground	Perry and Melody Adams
51-8315		1.78	Ground	Paul A. Finch
51-8406		6.78	Ground	Robert B. Perry
51-1106	0.014	1.48	Ground	Corp. of the Presiding Bishop of the LDS Church
51-2715	0.015	5.18	Ground	Helen Robbins
51-2722	0.045	2.35	Ground	Gerald F. Meyers
51-2732	0.1	7.54	Ground	Richard H. Jackson
51-2741	0.067	5.54	Ground	Clyde M. Lunceford
51-3768	0.03	3.56	Ground	Clyde M. Robbins
51-6468	0.015	1.6	Ground	Richard S. and Brenda J. Walker
51-6469	0.015	1.6	Ground	Mark C. and Laura A. Belk
51-6470	0.015	1.6	Ground	Paul F. Johnson
51-6471	0.015	1.59	Ground	Gary L. and Tamara S. York
51-6472	0.015	1.59	Ground	Will and Shera Gleave
51-6473	0.015	1.6	Ground	Michael D. Carson and Kimberly Larsen Carson
51-6474		1.59	Ground	Richard and Barbara Ann Tarwater
51-6475		1.59	Ground	Dee Broadhead
51-6531	0.12	0.3	Ground	Ezra B. and Anna Lou J. Patten
51-8059		9	Ground	Black Ledge Enterprises, LLC
51-8062		9	Ground	Kevin M. Smith
51-8063		9	Ground	James H. and Chere K. Young
51-1214	0.025	1.73	Ground	Chris Wall
51-1431	1.57	232	Ground	Corp. of the Presiding Bishop of the LDS Church
51-1436	0.5	5.5	Ground	Ezra B. and Anna Lou J. Patten
51-1646	0.015	1.37	Ground	Craig W. & Marguerite B. Wayman
51-7637		0.45	Ground	Grant Echols and Theresa Echols
51-8064		9	Ground	Tyler and Crystal Loveridge
51-8065		9	Ground	Brennan Christensen and Jacee Christensen
51-8067		1.45	Ground	Brady Durrant and Jacquel Durrant
51-8068		1.45	Ground	Leo K. and Betty Jo Sharp
51-8069		1.45	Ground	Ezra B. and Anna Lou J. Patten
51-8070		1.45	Ground	Ezra B. and Anna Lou J. Patten
51-8071		1.45	Ground	Ezra B. and Anna Lou J. Patten
51-8072		1.2	Ground	Ezra B. and Anna Lou J. Patten
51-8073		0.35	Ground	Ezra B. and Anna Lou J. Patten
51-8074		9	Ground	Ezra B. and Anna Lou J. Patten
51-8075		3.5	Ground	Ezra B. and Anna Lou J. Patten
51-8270		0.25	Ground	West Mountain Property Group, LLC
51-8271		0.55	Ground	Ezra B. and Anna Lou J. Patten
51-8272		0.55	Ground	Leo K. and Betty Jo Sharp
51-1401	3.191	68.97	Ground	Calvin K. and Leesa W. Blohm
51-1416	0.015	6.13	Ground	Federal Bank of Berkeley
51-6775		1.53	Ground	Kirt Stephen Olson
51-6776		14	Ground	Salem Capital, LLC
51-7830		61.26	Ground	Payson Fruit Growers Inc.
51-7855		15	Ground	L & E Brown Family LLC
51-2056	1.448	1.91	Ground	The Federal Land Bank of Berkeley
51-7004		0.45	Ground	Charles and Ellen Sheperd
51-7005		0.45	Ground	Brett J. and Susan Marrott
51-7006		0.45	Ground	David S. and Marcia G. Devenport
51-7007		0.45	Ground	Dennis W. and Cherie Gallegos
51-7008		0.45	Ground	Barbara Macioroski
51-7009		0.45	Ground	Glenda E. Johnson
51-7010		0.45	Ground	Steve L. and Monica M. Painter

51-7011		0.45	Ground	Lavern Meyer
51-7012		0.45	Ground	Gregory M. Dunnand Julie Dunn
51-7013		0.45	Ground	Jeffrey T. and Katrina Southwick
51-7014		0.45	Ground	Curtis L. Paulson
51-7015		0.45	Ground	Dan and Marcia Ventura
51-7016		0.45	Ground	Mark and Carol Richardson
51-7017		0.45	Ground	Melvin and Carol Janene Miller
51-7018		0.45	Ground	River Group, LLC
51-7019		0.45	Ground	Shane Obray
51-7020		0.45	Ground	Joseph Henry and Shauna Lee Quist
51-7021		0.45	Ground	Michael R. Kirkman
51-7022		0.45	Ground	Theron and Wendy Dutson
51-7023		0.45	Ground	Jon R. and Cathi Chisholm
51-7053		1	Ground	Byoyd Hanks
51-7143		2	Ground	
51-7323		0.55	Ground	Gail E. Paxton
51-7353		1.53	Ground	Carl R. and Kelli L. Parker
51-7360		1.53	Ground	Anthony and Rachel Cardon
51-7937		15	Ground	Richard S. and Sharon Ann Murano
51-8033		0.45	Ground	Kevin Denning
51-8139		38.74	Ground	Payson Fruit Growers Inc.
51-8379		8	Ground	Jeffrey T and Alisha Laynette Southwick
51-8380		1.39	Ground	Jeffrey T and Alisha Laynette Southwick
51-8572		22.5	Ground	Janis Phelps Anderson
51-8575		2.55	Ground	Janis Phelps Anderson
51-8671		7.5	Ground	Demonte Phelps
51-7360		1.53	Ground	Anthony and Rachel Cardon
51-7362		1.53	Ground	Broad Land Properties
51-7363		1.53	Ground	Michael D. Smith
51-7364		1.53	Ground	John S. Vanry
51-7366		1.53	Ground	David S. Chandler
51-7369		1.53	Ground	Tony and Jennifer Valdez
51-7371		1.53	Ground	Broad Land Properties
51-7377		1.53	Ground	Broad Land Properties
51-7379		1.53	Ground	Broad Land Properties
51-7381		96.28	Ground	Payson Fruit Growers Inc.
51-7384		0.45	Ground	Michael M. Beckstrom
51-7398		3	Ground	D Scott Taylor
51-7417		0.94	Ground	Cheyenne Richman
51-7419		5	Ground	Dennis Bishop
51-7582		1.06	Ground	G and C Case Family Trust
51-7634		0.7	Ground	Melvin and Muriel Meredith
51-7635	0.015	0.7	Ground	Melvin and Muriel Meredith
51-7640		0.7	Ground	Garry Thatcher
51-7669		6.75	Ground	Payson Fruit Growers Inc.
54-1000		1	Ground	Elroy W. Wilson
54-1037		1	Ground	
54-1008		10	Ground	Valley Asphalt Inc.
54-1009		1	Ground	Ian and Aspen J. Dunn
54-1224		2	Ground	K & S Burnham Family Trust
51-1074	0.015	2.43	Ground	A. Bert and Leah May Tanner
51-2277	0.004	0.45	Ground	McMullin Farm Properties LC
51-2404	0.33	2.62	Ground	Lyle Tanner
51-2718	0.078	21.23	Ground	Donald V. Brinkman
51-2726		0.45	Ground	Russell E. and Bonnie L. Berhow
51-2763		1.05	Ground	McMullin Farm Properties LC
51-3763	0.013	1.73	Ground	David & Juanita Guzman
51-3865	0.013	1.73	Ground	Donna Crawford
51-3882	0.013	1.49	Ground	Richard & Reta P. Taylor
51-3889	0.012	1.37	Ground	Guy Junior and Hannah M. Farley
51-4490	0.026	3.32	Ground	Walter F. & Jean M. Limb
51-4660	0.015	2.04	Ground	Allen Lavell Davenport
51-6139	0.015	1.62	Ground	David McMullin
51-6210	0.015	0.98	Ground	Guy Junior and Hannah M. Farley
51-6657		1.5	Ground	Von C. Dansie and Carlene B. Dansie
51-7065		0.51	Ground	B. Clint and AmandaN. Halford
51-7066		0.51	Ground	Hadlock Family Trust
51-7067		0.51	Ground	Dan and Kristy McNally
51-7069		0.51	Ground	Rich L. Rollins
51-7070		0.51	Ground	Jared W. and Jana W. McNaughtan

51-7071		0.51	Ground	Gary R. and Cheryl C. Evans
51-7072		0.51	Ground	Raymond Dee Butler
51-7084		1.54	Ground	Donnie Ray and Valeri Jean Dunn
51-7085		0.45	Ground	James S. and Bonnie G. St. John
51-7086		0.45	Ground	Stewart B. Haun Sr. and Rugh Haun
51-1180	0.015	5.6	Ground	Darrell & Kathleen Hiatt
51-1271	0.015	1.73	Ground	Ezra Garner
51-1408		2.08	Ground	James L. and Barbara Aitken
51-1594		5.01	Ground	McMullin Farm Properties LC
51-1602	0.082	9.99	Ground	Brett Neff
51-1642	0.015	3.58	Ground	Nada Laverne Pierce
51-1981	0.027	0.59	Ground	Lynn and Emmy F. Jones
51-5386	0.015	0.83	Ground	Francis D. Malloy
51-5391	0.015	1.45	Ground	Elmon J. Hendrickson
51-7631		2.02	Ground	M. Palmer and Joanne H. Palmer Revocable Trust
51-7632		0.67	Ground	Paul B. and Kathleen C. Hansen Family Trust
51-7633		0.85	Ground	Paul B. and Kathleen C. Hansen Family Trust
51-8521		0.99	Ground	Russell E. and Bonnie L. Berhow
51-7742		0.23	Ground	Clyde R. Griffin
51-7743		3.03	Ground	Clyde R. Griffin
51-7788		3	Ground	Todd W. Thatcher
51-7789		0.5	Ground	Tammy Sweat-Chipman
51-7804		0.75	Ground	Kevin Ridd
51-7819		4.5	Ground	JJM Arrowhead, LC
51-7820		4.5	Ground	JJM Arrowhead, LC
51-7821		4.5	Ground	JJM Arrowhead, LC
51-7822		5.5	Ground	JJM Arrowhead, LC
51-7824		4.5	Ground	JJM Arrowhead, LC
51-7825		4.5	Ground	JJM Arrowhead, LC
51-7826		4.5	Ground	JJM Arrowhead, LC
51-7827		4.5	Ground	JJM Arrowhead, LC
51-7868		0.5	Ground	Randall Todd and Phullis Kaelene Huff
51-7877		0.5	Ground	Martin Properties, KDC, LLC
51-7879		0.25	Ground	Martin Properties, KDC, LLC
51-7885		0.23	Ground	Steven K. Davis
51-2426	0.011	1.4	Ground	Selby O. Dixon
51-2432	0.027	8	Ground	Don Scott & Breda Oberhansly
51-2433	0.75	160	Ground	Don Scott & Breda Oberhansly
51-2435	0.033	8	Ground	Don Scott & Breda Oberhansly
51-2439	0.022	8	Ground	Don Scott & Breda Oberhansly
51-8127		0.81	Ground	Richard Dean and Mary Jacquelyn Thomas
51-1078	0.017	5.93	Ground	Corp. of the Presiding Bishop of the LDS Church
51-2637	0.045	2.84	Ground	Payson Freeway Property, LLC
51-7742		0.23	Ground	Clyde R. Griffin
51-7743		3.03	Ground	Clyde R. Griffin
51-7788		3	Ground	Perry E. Morris
51-7789		0.5	Ground	Tammy Sweat-Chipman
51-7804		0.75	Ground	Kevin Ridd
51-7819		4.5	Ground	JJM Arrowhead, LC
51-7820		4.5	Ground	JJM Arrowhead, LC
51-7821		4.5	Ground	JJM Arrowhead, LC
51-7822		5.5	Ground	JJM Arrowhead, LC
51-7824		4.5	Ground	JJM Arrowhead, LC
51-7825		4.5	Ground	JJM Arrowhead, LC
51-7826		4.5	Ground	JJM Arrowhead, LC
51-7827		4.5	Ground	JJM Arrowhead, LC
51-7868		0.5	Ground	Randall Todd and Phullis Kaelene Huff
51-7877		0.5	Ground	Martin Properties, KDC, LLC
51-7879		0.25	Ground	Martin Properties, KDC, LLC
51-7885		0.45	Ground	Steven K. Davis
51-1273	0.033	14.22	Ground	Afton Shirlee and Charles H. Maurin
51-1366	0.043	18.45	Ground	Afton Shirlee and Charles H. Maurin
51-1519	0.134	20.8	Ground	Ray Cole & Dona Merl Stickney
51-1530	1	16.13	Ground	The Harold Max Jones Trust
51-1822	0.007	0.11	Ground	John R. and Mary H. Rasmussen
51-1866	0.022	2.9	Ground	Cleon Moore
51-1867	0.5	20.34	Ground	William F. Tanner
51-1874	0.134	8	Ground	Gordon S. & Mina Karen Taylor
51-1875	0.067	2.08	Ground	Gordon S. & Mina Karen Taylor
51-1877	0.134	12	Ground	Amanda V. Wilson

51-1916	0.011	0.65	Ground	Elsie L. Kerr
51-1945		4.65	Ground	Sherol T. Wilson
51-1950		4.2	Ground	Jeff and Michelle Girot
51-1964	0.068	3.97	Ground	Wayne L. Brown
51-1965	0.044	8.51	Ground	Samuel Douglass
51-2261	0.056	10.7	Ground	Justin A. Loveless
51-2403	0.022	9.4	Ground	Henry Drissell
51-2408	0.223	20	Ground	Brent L. and Heidi M. Anderson
51-2409	0.089	8.79	Ground	Brent L. and Heidi M. Anderson
51-2471	0.027	4.7	Ground	DFG, LCG, LLC
51-2476	0.011	0.14	Ground	Hyrum and Anita Wilson
51-2483		6.8	Ground	Ron L. and Donna B. Price
51-2493	0.022	9.12	Ground	Cleon Moore
51-2495	0.018	2.12	Ground	Cliff and Amberly Brimhall
51-2496		16.62	Ground	Geneva Rock Products, Inc.
51-2503	0.067	20.18	Ground	Sarah K. Stark
51-2504	0.078	20.18	Ground	Sarah K. Stark
51-2505	0.111	26.74	Ground	Sarah K. Stark
51-2523	1	80	Ground	Chas. D. Douglass
51-2524	0.056	25.01	Ground	Maurin Family Trust
51-2516	0.067	24.17	Ground	Pamela R. Wilson
51-2617	0.067	24.17	Ground	Pamela R. Wilson
51-1968		0.59	Ground	Layne and Lanea Blatter
51-2044	0.022	0.56	Ground	Ann J. Loveless
51-2051	0.111	18.74	Ground	Kaylene Jones Nackos and Frank Nackos
51-2052	0.089	30.74	Ground	Kaylene Jones Nackos and Frank Nackos
51-2053		7.12	Ground	Rodney J. Davis & Gaylene L. Davis Family Trust
51-2054	0.089	12	Ground	Rodney J. Davis & Gaylene L. Davis Family Trust
51-2055	0.156	12	Ground	Rodney J. Davis & Gaylene L. Davis Family Trust
51-3608	0.015	1.15	Ground	Morgan V. and Janet S. Andrews
51-3881	0.008	1.28	Ground	Willard G. and Alice M. Jewett
51-4190	0.015	1.53	Ground	Steven E. Buys
51-4231	0.015	1.33	Ground	Shaun and Maria J. Tree
51-5257	0.015	1.25	Ground	Rodney J. Davis & Gaylene L. Davis Family Trust
51-6153	0.015	1.71	Ground	Charles H. and Afton S. Maurin
51-6220	0.015	1.59	Ground	Bart T. Wilson
51-2624	0.074	31.9	Ground	Kent Wilson
51-2642	0.056	23	Ground	Francis D. Malloy
51-2644	0.056	23.73	Ground	Frank Cowan
51-2714	0.022	9.88	Ground	Ray Cole & Dona Merl Stickney
51-2764	0.056	16.28	Ground	Charles H. and Afton S. Maurin
51-2770	0.033	30.54	Ground	Wendell Howard and Nellie Barney
51-2771	0.1	30.54	Ground	Wendell Howard and Nellie Barney
51-2816		3.49	Ground	Sherol T. and Marian C. Wilson
51-2944	0.033	1	Ground	Morgan V and Janet S. Andrews
51-7781		14.85	Ground	Wayne L. and Mary Jean Brown
51-6442	0.015	1.44	Ground	Scott J. and Abbie B. Finlinson
51-6697		1.73	Ground	Cliff and Amberly Brimhall
51-6772		1.87	Ground	Robert J. & Kathy Lee Rasmussen Rev. Fam. Trust
51-6817		0.93	Ground	Holly and Dexter Kent
51-8310		1.73	Ground	Allison Kapri and James M. Jensen
51-8511		1	Ground	JBW Investment Co., LLC
51-8703	0.15	12	Ground	Steven Chad Rawlins
54-991		0.08	Ground	John D. Jacob
54-993		0.506	Ground	Jacqueline Jarboe
51-7905		1.6	Ground	Jess Harold and Natalie Jo Nielson Jensen
51-1969	0.033	8.9	Ground	Layne and Lanea Blatter
51-1972	0.027	11.44	Ground	Layne and Lanea Blatter
51-1977	0.022	1.51	Ground	James F. and Tina Samuels
51-1978	0.011	0.56	Ground	Dennis Morganson
51-1979	0.011	0.5	Ground	Isaac Hansen
51-2025	0.066	1.37	Ground	Lance S. Wilson
51-2027	0.066	3	Ground	W. K. Graham
51-2028	0.011	8.25	Ground	Carroll Wilson
51-2029	0.111	22.55	Ground	Wilson Ranch, LC
51-2030	0.022	9.45	Ground	Carroll Wilson
51-2296	0.25	22.8	Ground	Edward R. Stevens
51-2299	0.5	10	Ground	Edward R. Stevens
51-2400	1	22.42	Ground	Carroll Wilson
51-2402	1.5	65.06	Ground	John J. Daniels

51-2410	0.089	8	Ground	Alma Van Wagenen
51-2414	0.004	2.89	Ground	Edward R. Stevens
51-2477		6.82	Ground	Vernile O. & Doris B. Gasser
51-2478		9.82	Ground	Vernile O. & Doris B. Gasser
51-2579	0.022	10.47	Ground	Spencer Lindsey and Brooke Lindsey
51-2655	0.033	13.98	Ground	Layne and Lanea Blatter
51-2656	0.045	19.07	Ground	Layne and Lanea Blatter
51-2767	0.015	1.73	Ground	P. J. Mitchell
51-2813	0.045	1.96	Ground	Don L. & B. Gayle Samuels
51-2816		3.94	Ground	Sherol T. and Marian C. Wilson
51-4733	0.015	1.67	Ground	James M. and Alice J. Walker
51-1184	0.015	1.73	Ground	Paul G. Barton
51-1463		9.24	Ground	James M. and Alice J. Walker
51-1535	0.617	261.44	Ground	Carroll Wilson
51-1851	0.5	130.72	Ground	Spanish Fork Stake of the LDS Church
51-1852	0.033	14.15	Ground	Spanish Fork Stake of the LDS Church
51-1853	0.1	42.37	Ground	Spanish Fork Stake of the LDS Church
51-2900	0.5	80	Ground	Layne F. Blatter
51-2918	0.056	5.9	Ground	Francis J. Christensen
51-3486		2	Ground	Roger D. and Sandra B. Howells
51-3631	0.015	1.73	Ground	George Wallace Morganson
51-3844	0.015	3	Ground	Glowie L. Levanger Trust
51-3858	0.022	2.65	Ground	Ronald L. and Sherree L. Jolley
51-4003	0.015	3	Ground	LSC Real Estate LLC
51-4163	0.045	5	Ground	John F. and Louise Adams
51-5824		1.79	Ground	Mark and Gay Pulham
51-6099	0.015	1.32	Ground	Dale F. Stevenson
51-6336	0.015	1.59	Ground	Ray Butler
51-6339	0.015	1.56	Ground	Dennis Morganson
51-6343	0.008	1.59	Ground	George Wilson
51-6344	0.008	1.59	Ground	Shane Wilson
51-6443	0.015	1.73	Ground	Eddie L. and Debbie A. Robinett
51-6444		0.28	Ground	Rusty and Kama Schramm
51-6445	0.015	1.57	Ground	Mark Christensen
51-6479	0.009	2.01	Ground	Gerald K. Hanks
51-6482		1.73	Ground	Scott L. and Amelia S. Dumas
51-6553		1.73	Ground	David J. & Renae Ellsworth
51-6589		1.17	Ground	Sean M. Cox and Cassey Cox
51-6615		2.07	Ground	James Fillmore
51-6797		1.14	Ground	Thomas J. and Merdene Lowe
51-6805		1.28	Ground	Gay Pulham
51-6865		1.73	Ground	David Law
51-7816		1.32	Ground	Wilson Brothers Cattle Ranch L.L.C.
51-5319	0.015	1.73	Ground	David M. Coombs
51-6896		10	Ground	Larry and Sherril V. Liston
51-7025		1.45	Ground	Robert Stanley and Barbara Lynn Gullion
51-7026		1.45	Ground	Gordon E. and Carole L. Turner
51-7027		1.45	Ground	Davis Family Trust
51-7028		1.45	Ground	Michael Ray and Carol A. Stevens
51-7034		1.45	Ground	Franklin Blair Proctor Bypass Trust
51-7284		1.65	Ground	Don Jensen
51-7541		1.25	Ground	Troy A. and Bonnie A. Peterson
51-7542		1.25	Ground	Jacob R. and Gina W. Miller
51-7837		0.42	Ground	Jay Morganson
51-7920		9	Ground	Robert J. and Suzanne B. Stevens
51-7921		26.92	Ground	Robert J. and Suzanne B. Stevens
51-7936		0.56	Ground	Troy C. and Angeleene Paxton
51-8034		0.45	Ground	Jay Morganson
51-8295		9	Ground	Robert J. and Suzanne B. Stevens
51-8296		3.16	Ground	Ammon R. C. and Kristen L. Grant
51-8297		2.92	Ground	Ammon R. C. and Kristen L. Grant
51-8298		1	Ground	Luthy Family Trust
51-8299		1	Ground	Travis S. Hales and Jillian Margaret Hales
51-8304		1	Ground	Larry G. Liston
51-8321		1	Ground	Robert J. and Suzanne B. Stevens
51-8331		2.73	Ground	Gail E. and Carolyn Paxton
54-988		0.1	Ground	William and Kara Brimley
51-1256	0.015	1.73	Ground	Leo Thompson
51-1299	0.131	4.32	Ground	SLS Associates, LLC
51-1310	0.015	1.68	Ground	Strawberry Water Users Association

51-1364	0.015	1.73	Ground	Grace Tanner
51-1508	0.5	58.99	Ground	Glen F. Cowan
51-1624	0.015	1.12	Ground	The Henry and Catherine Meyer Family Trust
51-1772	0.011	1.12	Ground	Beswick M. Tanner
51-1856	0.446	50.95	Ground	Union Pacific Railroad company
51-1945		4.65	Ground	Sherol T. Wilson
51-3491	0.013	1.73	Ground	James Roy Harris
51-3503	0.013	1.73	Ground	Jeffery D. and Margaret O. Cooper
51-2719	0.022	2.36	Ground	Charley Miller
51-2720	1.011	42.8	Ground	Charley Miller
51-2739	0.131	4.32	Ground	SLS Associates, LLC
51-2871	0.022	15.93	Ground	David R. and Deanna Oryall
51-2892	0.031	0.6	Ground	Harold C. Elaine Patton
51-2912	0.037	26	Ground	Morlin P. and Rebeccan A. Oldham
51-2963	0.03	4.25	Ground	Don R. Tanner
51-2964	0.015	1.73	Ground	Chad D. and Kimberly Ann Craig
51-3041	0.015	2.59	Ground	Earl S. Allred
51-3046	0.015	6.54	Ground	Greg L. Farr
51-3047	0.015	0.56	Ground	Jeffery D. and Margaret O. Cooper
51-3479	0.015	2.15	Ground	Bradley W. Jeffery and Michele Jeffery
51-4860	0.015	1.14	Ground	Royal D. Leavitt
51-4872	0.015	1.29	Ground	Sheldon & Frances Hathaway
51-4900	0.015	1.72	Ground	The Beckstead Family Living Trust
51-4961	0.015	2.71	Ground	Dexter D. Kent
51-6179	0.015	1.27	Ground	Marion Buys
51-6201	0.015	1.73	Ground	Blaine L. Wright
51-3812	0.015	1.73	Ground	John F. & Janice L. Walden
51-4714	0.022	3.44	Ground	Stanley R. & Lynne O'Larey
51-7729		2.12	Ground	Larry H. and Elaine Farr
51-7730		2.62	Ground	Larry H. and Elaine Farr
51-7790		0.5	Ground	Timothy Hale
51-8022		1.25	Ground	Brent Neff
51-8410		0.45	Ground	The Beckstead Family Living Trust
51-8414	0.078	12	Ground	Jeffery D. Cooper Marital & Family Trust
51-6226	0.015	1.73	Ground	Jeffery D. Cooper
51-6291	0.015	1.62	Ground	Dave and Cheri Bean
51-6292	0.015	1.62	Ground	Mark Wignall
51-6293	0.012	1.62	Ground	Mike Mayhew
51-6296	0.015	1.59	Ground	Leah May Tanner
51-6332		1.45	Ground	Mike J. and Jennifer A. Caron
51-6345		1.45	Ground	B & H Anderson Properties L.C.
51-6856		1.39	Ground	Toni Christensen
51-8634	0.002	1.5	Ground	Natalie Ralph
51-8667		1	Ground	Joshua and Holly Anderson
51-8416		0.59	Ground	Tyler Stinson and Heather Stinson
51-8417		0.59	Ground	James L. and Irene B. Smart
51-8418		0.59	Ground	Andre and Boni L. Palfreyman
51-8419		0.59	Ground	Jeffery D. Cooper Marital & Family Trust
51-8420		0.62	Ground	Fidelity Ventures, Inc.
51-8423		0.59	Ground	Allaire Younica
51-8527		8.26	Ground	Corp. of the Presiding Bishop of the LDS Church
51-8552		8.07	Ground	Corp. of the Presiding Bishop of the LDS Church
a38408		0.86	Ground	The Beckstead Family Living Trust
51-2547	0.045	1.51	Ground	C. L. Belcher
51-2815	0.011	1.73	Ground	Edwin E. Ballard
51-2816		3.49	Ground	Sherol T. and Marian C. Wilson
51-2849	0.043	20.42	Ground	Nyle H. or Tanya A. Thatcher
51-2868	2	2.15	Ground	Stanley S. Douglas
51-1206	0.015	1.26	Ground	Norma A. Lerwill
51-1307	0.015	1.73	Ground	Afton D. and Charles H. Maurin
51-1365	0.015	1.73	Ground	Steven L. Woolsey
51-1546	0.015	1.21	Ground	Lael M. Moore Family Trust
51-3771	0.011	3.45	Ground	Nathan Terre
51-4183	0.004	1.28	Ground	Theron F. and Patricia L. Hill
51-4585	0.013	1.15	Ground	Max Lerwill and Noreen Lerwill Revocable Trust
51-6185		0.28	Ground	Lee R. Hill
51-2376	0.1	2.67	Ground	Blanchard Dixon
51-2489	0.167	20.31	Ground	Ernest Bamberger
51-2847	0.043	1.75	Ground	J. David Garner
51-1300	0.015	1.73	Ground	Bliss S. Elmer

51-1433	0.015	1.85	Ground	The Hone Family Trust
51-1484	2.65	776	Ground	Corp. of the Presiding Bishop of the LDS Church
51-4577	0.015	2.85	Ground	Merlin Phillips
51-6557		0.89	Ground	Merlin Phillips
51-1052	0.015	2.46	Ground	Thomas Woodhouse
51-1075	0.015	2.15	Ground	R Y Family Trust
51-1095	0.015	1.73	Ground	Sterline Lee and Rosamond Ballard
51-1100	0.01	4.87	Ground	Max & Marie W. Youd
51-2427	0.1	4.05	Ground	William H. Morris
51-2428	0.33	40	Ground	Selby O. Dixon
51-2429	0.056	10.8	Ground	Selby O. Dixon
51-2430	0.33	20	Ground	Selby O. Dixon
51-2431	0.6	40	Ground	Selby O. Dixon
51-2434	0.33	40	Ground	C. F. Dixon
51-2436	0.75	120	Ground	C. F. Dixon
51-2438	0.5	40	Ground	C. F. Dixon
51-2832	0.043	1.59	Ground	Jodi E. Young
51-4482	0.015	1.4	Ground	Liam E. and Elizabeth Williams
51-4522	0.015	1	Ground	Ralph Woodhouse
51-6114	0.015	1.79	Ground	Edwin E. Ballard
51-6191	0.015	1.45	Ground	Hershel Woodhouse
51-6305	0.015	1.73	Ground	Walter S. Tachiki
51-6882		0.59	Ground	Ross D. and Kristina L. Christensen
51-3040	0.013	2	Ground	Rex L. and Dorothy J. Lee Lee
51-4951	0.015	3	Ground	Robert E. Bliss
51-5142	0.015	3	Ground	Robert E. Bliss
51-5160	0.015	2.07	Ground	Sterling L. and Rosamond Ballard
51-5324	0.015	10.84	Ground	Fern Lindley
51-1188	0.015	1.73	Ground	Reed A. Brunson
51-1471	0.013	1.56	Ground	Kim B. and Karen Kay Montague
51-1481		100	Ground	Allred Properties, LLC
51-1528		45.6	Ground	Allred Properties, LLC
51-1581	0.371	25.68	Ground	Bruce L. Walton
51-4090	0.015	1.62	Ground	Allred Properties, LLC
51-4191	0.015	2.28	Ground	Daniel R. Ellsworth and Becky A. Ellsworth
51-4232	0.015	1.36	Ground	Kennington B. and Charlene H. Condie
51-4488	0.015	1.56	Ground	Rover L. Bradley
51-4505	0.015	1.57	Ground	Randy J. and Sharon M. Dansie
51-4523	0.015	1.67	Ground	Wayne Lavell & Janice T. Gasser
51-4649	0.015	1.59	Ground	Allred Properties, LLC
51-2283	0.022	4.97	Ground	David G. and Nelda Degraw
51-2728	0.089	3.18	Ground	Elsie Schramm
51-2881	0.1	0.02	Ground	Susan Egan
51-2883	0.031	13.38	Ground	Gene and Elaine Vest
51-2886	0.062	3.57	Ground	Albert W. and Afton Bowen
51-2896	0.031	2	Ground	Arthur & Phyllis Renaud
51-2943	0.062	26.27	Ground	Gene and Elaine Vest
51-2971	0.031	1.96	Ground	Mont E. and Sandra H. Spencer Family Trust
51-2974		104.92	Ground	Allred Properties, LLC
51-4956	0.011	1.45	Ground	Howard Christensen
51-5823	0.015	1.53	Ground	Paul H. K. Wick
51-7259		1.5	Ground	David Leon and Doroth P. Haskell
51-7262		0.5	Ground	Leo Dwane and Ludean S. Haskell
51-7660		60	Ground	Allred Properties, LLC
51-7927		1.85	Ground	Bonnie and Clay Foy
a41436		146.88	Ground	Allred Properties, LLC
51-4730	0.015	1.04	Ground	Dennis r. Knuteson
51-4734	0.015	1.59	Ground	E. Drew and Julie K. Tenney
51-4760	0.015	0.57	Ground	R. Max Hiatt
51-4788	0.015	2.26	Ground	Leo Dwane and Ludean S. Haskell
51-6754		1.73	Ground	Stephen A. Ekins
51-6755		1.73	Ground	Randle J. and Phyllis S. Dansie
51-6876		1.45	Ground	Janice T. Gasser
51-6946		3	Ground	Tommy Lynn and April Margret Allan Alvey F. T.
51-6986		2	Ground	Denton M. Hatch
51-7969		2	Ground	Randy and Paige Adams
51-2872	0.031	1.59	Ground	Newel C. and Ione L. Kofford
51-2893	0.062	2.34	Ground	Joseph A. & Ellen Irene Holt
51-2406	0.078	6.08	Ground	Ella Amos
51-2447	0.089	6.22	Ground	Charles A. Cloward

51-2946	0.031	24.26	Ground	Max E. Rockstader
51-3035	0.013	1.73	Ground	David A. Wormley
51-3615	0.013	1.73	Ground	Nedra Call
51-1304	0.015	1.73	Ground	A. Z. Robbins
51-1465	0.038	2.77	Ground	Reed D. Brimhall
51-1824	0.044	4.45	Ground	Asael Hancock
51-1868	0.178	35.85	Ground	Cravens Percolating Pipeline Company
51-1876	0.111	2.74	Ground	Amanda V. Wilson
51-2026	0.045	11.4	Ground	Clair Porter
51-3500	0.045	5.44	Ground	Carroll Wilson
51-4174	0.015	1.73	Ground	Robert McMullin
51-2449	0.067	28	Ground	Douglas Percolating Pipe-line Waterworks Co.
51-1177	0.015	0.99	Ground	Stone Mountain Investment Properties, LLC
51-1186	0.015	1.73	Ground	M. W. Hurst
51-1970	0.029	6.67	Ground	Glen M. Christensen
51-1971	0.011	8	Ground	Glen M. and Lillian M. Christensen
51-1976	0.018	6.86	Ground	Paul O. Hurst
51-2015	0.027	1.29	Ground	State of Utah Emergency Relief Administration
51-2018	0.018	11.54	Ground	Hurst Brothers
51-4083	0.013	1.24	Ground	Rick Pond and Sandi Pond
51-4181	0.015	1.67	Ground	Dean Paul Ivory
51-4619		1.56	Ground	Stanley J. Goodrich
51-4672	0.015	1.53	Ground	Val Winegar
51-8621		0.45	Ground	Timber Canyon LLC
51-1053	0.015	0.87	Ground	Byron H. Parker
51-2470	0.033	4.95	Ground	Angus & Mary Kathryn Mortensen
51-2729	0.1	14.59	Ground	Glenn F. Cowan
51-2944	0.05	1.8	Ground	C. Carl Butler
51-3045	0.015	1.9	Ground	H. Tracy Hall
51-5144	0.015	1.56	Ground	Elwood Hall
51-5145	0.015	1.56	Ground	Corp. of the Presiding Bishop of the LDS Church
51-5546	0.015	1.14	Ground	Timber Canyon LLC
51-5830	0.015	1.67	Ground	Lloyd and Tamara Stanton
51-1122	0.015	1.91	Ground	Wayne Tanner
51-1127	0.015	1.73	Ground	Martell Keetch
51-1156	0.015	1.73	Ground	Bloomer Trust
51-1201	0.014	10.13	Ground	William L. Hiatt
51-1239	0.011	2.8	Ground	Grant F. Larsen
51-1249	0.015	1.81	Ground	Orlo Larson
51-1526	4.985	257.7	Ground	Mark R. and Denise Y Dehart
51-1823	0.004	0.73	Ground	John Alton Tanner
			Ground	
51-3773	0.015	1.98	Ground	Thomas M. and Janet B. Butler
51-3854	0.015	1.39	Ground	Reed R. Ekins
51-4069	0.015	1.47	Ground	The Family Trust of Eldon Lee Wood and Janice
51-4079	0.015	1.87	Ground	Ile M. Turpin
51-2266	0.011	0.45	Ground	Sperry Family Trust
51-2411	0.033	10.02	Ground	Gustav and Margaret Jean Jamin
51-2846	0.043	2	Ground	Max A. Gardner
51-2904		0.58	Ground	O. Blaine Larson
51-3474	0.1	5.85	Ground	David Tim Jensen
51-5292	0.015	1.81	Ground	Orlo B. & June A Larson
51-5293	0.015	1.81	Ground	Orlo B. & June A Larson
51-6200	0.015	1.45	Ground	Mark Dehart
51-6706		2.01	Ground	Larry Biggs
51-6707		1.59	Ground	Christian Life Assembly of God
51-6708		1.53	Ground	Ross S. Huff
51-6798		2.15	Ground	Robert D. Burt
51-6940		0.51	Ground	Brian V. and Debra Hulet
51-6941		0.51	Ground	Eugene E. and colleen Bohn
51-4249	0.156	66.1	Ground	Mark R. and Scott A. Dehart
51-4250	0.969	96	Ground	Mackey J. Boley
51-4475	0.015	1.67	Ground	Rodger E. Johnson
51-4695	0.015	2.15	Ground	David J. & Tonya R. Adams
51-7654		4.73	Ground	Mark Dehart
51-1130	0.015	3.19	Ground	Gilbert Peay
51-1232	0.015	1.73	Ground	Leonard & Ellen J. Winegar
51-1407	0.015	1.45	Ground	Clifton Brereton
51-1526	4.985	128.85	Ground	Mark R. and Denise Y Dehart
51-3493	0.045	5.2	Ground	George M. Cowan

51-3499	0.2	20.91	Ground	Bonnie M. Winterton Family Living Trust
51-3660	0.111	11.16	Ground	Ellen J. Winegar
51-4712	0.015	1.73	Ground	Bonnie M. Winterton Family Living Trust
51-4732	0.058	4.34	Ground	Bonnie M. Winterton Family Living Trust
51-4776	0.015	1.83	Ground	Bonnie M. Winterton Family Living Trust
51-1047	0.1	4.23	Ground	E. J. Erekson
51-1094	0.015	1.93	Ground	Patterson Construction Inc.
51-2301	0.004	1.46	Ground	Jonathan Mott and Kim Mott
51-2546	0.002	0.73	Ground	Arnold W. Robinson
51-2585	0.022	3.29	Ground	Kriser Homes and Communities Inc.
51-2765	0.3	17.85	Ground	Watson L. Lafferty
51-2972	0.31	2	Ground	Harry T. Hardman
51-8087		1.88	Ground	John Darrell Zeeman Revocable Trust
51-8154		9.33	Ground	Mark R. and Denise Y Dehart
51-4994	0.015	1.53	Ground	Kent B. Carroll
51-1163	0.013	1.51	Ground	Allred Properties, LLC
51-1612		8.45	Ground	Goosnest Water Company
51-3644	0.4	152.77	Ground	Max S. and Reeta Staheli
51-4540	0.015	2.01	Ground	James R. Phillips
51-4565	0.015	1.32	Ground	Payson Properties, LLC
51-4569	0.015	2.71	Ground	Maryanne W. Williams Family Inter Vivos Rev Tr
51-4574	0.015	1.56	Ground	Jefferson Bakley and Janae Bell
51-4595	0.015	1.51	Ground	Rey L. Allred
51-4607	0.015	1.73	Ground	Curtis L. & Catherine Burton
51-4635	0.015	1.67	Ground	Brent R. Hawkins
51-4747		1.51	Ground	John Wright and Pearl Ann Seamons
51-2884	0.062	18	Ground	Payson Properties, LLC
51-2902	0.2	40	Ground	Goosnest Water Company
51-2961	0.156	8	Ground	Payson Properties, LLC
51-4842	0.013	1.9	Ground	Norman L. Johnson
51-4855	0.015	1.62	Ground	David T & Alice J. Lazenby
51-4911	0.013	5.51	Ground	Max S. and Reeta Staheli
51-4985	0.015	1.53	Ground	Daniel R. Ellsworth
51-5138	0.015	1.45	Ground	Elizabeth A. Arrington
51-5138	0.015	1.45	Ground	Elizabeth A. Arrington
51-5187	0.015	1.53	Ground	George F. and Sharon L. Woodruff
51-5543	0.015	1.62	Ground	Ted R. and Donna F. Ross
51-6038	0.015	1.62	Ground	David Lee & C. Jane Moon
51-6098	0.015	1.59	Ground	Max S. and Reeta Staheli
51-6355	0.015	1.56	Ground	Howard F. and Janice Horrocks
51-6852		1.73	Ground	Brian G. & Lisa A. Smith
51-1131	0.014	1.75	Ground	R. E. Mower
51-1204	0.03	1.21	Ground	Annette Louise Judd
51-1219		11.12	Ground	Annette Louise Judd
51-1220		11.12	Ground	Annette Louise Judd
51-1337	0.015	1.9	Ground	Kenneth D. Butler
51-1432		31.19	Ground	Spring Lake Water Works Company
51-1455	0.015	1.7	Ground	Jeanie Lynn Huntsman
51-1810	0.2	0.87	Ground	Garry A. & Joyce H. Hathaway
51-2465	1	60.34	Ground	Lynn D. Stewart
51-2612	0.045	0.85	Ground	Larry W. and Holli G. Eva
51-2678	0.022	9.74	Ground	Jim B. and Shin Ja Mower
51-5199	0.015	10	Ground	Dale K. & Darian M. Draper
51-5805	0.015	1.53	Ground	A. J. Smith
51-5809	0.015	1.62	Ground	Angela Stanton
51-6069	0.015	1.45	Ground	Natalie Stauffer
51-6451	0.015	1.07	Ground	Elbert P. and Olive T. Barnett
51-6490	0.015	1.73	Ground	Raymond C. and Pearl G. Johnson
51-6574		1.65	Ground	Ron J. and Cherie M. Zeeman
51-6819		2.01	Ground	Greg and Annette Callaway
51-7859		2	Ground	Annette Louise Judd
51-8117		1	Ground	Ted D. and Catherine M. Hone
51-7276		1.43	Ground	Brett and Munday Liston
51-1168		0.45	Ground	Patricia Hanson
51-1203	0.015	1.73	Ground	John S. Ballard and Debbie Ballard
51-1884		1.45	Ground	Jason J. and Joni B. Bateman
51-2021	1.003	108.05	Ground	Spring Lake Enterprises
51-2033	0.001	0.72	Ground	Spring Lake Enterprises
51-2073	0.156	3.25	Ground	Fanny E. O. Spencer
51-3512	0.022	0.28	Ground	Grant M. Lyman

51-3832	0.25	12.28	Ground	George O. Lefevre
51-4171	0.013	1.73	Ground	Mennco Corporation
51-4681	0.015	2.09	Ground	Brandon and Emily Lefevre
51-6616		1.59	Ground	Mark Brown
51-6680		1.56	Ground	C. Kay and Norma Sturdevant
51-2766	0.015	1.84	Ground	Justin and Jennifer Christensen
51-7670		0.45	Ground	Stephen D. and Joni Pratt
51-3752	0.013	2	Ground	Thomas W. and Joy D. Olson
51-4009	0.013	1.73	Ground	Forrest F. & Esther J. Oberman
51-4098	0.015	1.25	Ground	Karl M. and Marie G. Ashton Family Trust
51-7861		0.52	Ground	Mark D and Kimberly Butler
51-5318	0.015	1.54	Ground	Lewis Field
51-1286	3.5	97.12	Ground	Karl M. and Marie G. Ashton
51-4063	0.045	5	Ground	Clyde D. Westwood
51-4727	0.015	1.73	Ground	Clyde D. Westwood
51-1344	0.015	3.78	Ground	Arthur Livingston

Private Payson Subarea Ground

Water Rights	Subtotal	11,167	ac-ft	
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51-7192	a21935	135.52	Ground	Payson City
51-7197			Ground	Payson City
51-7198			Ground	Payson City
51-7203	a22131	48.4	Ground	Payson City
51-7224	a22496	48.4	Ground	Payson City
51-7241	a22703	48.4	Ground	Payson City
51-7244	a22723	4.94	Ground	Payson City
51-7250	a22765	103.74	Ground	Payson City
51-7251	a22766	51.87	Ground	Payson City
51-7268	a23129	4.84	Ground	Payson City
51-7278	a23095	96.8	Ground	Payson City
51-7294	a23259	9.68	Ground	Payson City
51-7303	a23349	9.68	Ground	Payson City
51-7314	a23441	53.24	Ground	Payson City
51-7315	a23464	203.28	Ground	Payson City
51-7316	a23465	4.84	Ground	Payson City
51-7336	a23774	203.28	Ground	Payson City
51-7403	a24258	48.4	Ground	Payson City
51-7551	a25118	159.72	Ground	Payson City
51-7580	a25513	4.84	Ground	Payson City
51-7614	a25944	24.2	Ground	Payson City
55-9505			Ground	Payson City
51-7328	a23644	27.545	Ground	Payson City
51-7400	a24147	27.545	Ground	Payson City
51-7555	a25222	47.22	Ground	Payson City
51-7615	a25961	47.22	Ground	Payson City
51-7785	a27885	80	Ground	Payson City
59-5907	a41283	454.79	Ground	Payson City
51-1313	a40557	3807.4323	Ground	Payson City
51-1397	a40557		Ground	Payson City
51-1398	a40557		Ground	Payson City
51-1762	a40557		Ground	Payson City
51-1763	a40557		Ground	Payson City
51-1764	a40557		Ground	Payson City
51-1765	a40557		Ground	Payson City
51-2525	a40557		Ground	Payson City
51-2694	a40557		Ground	Payson City
51-3781	a40557		Ground	Payson City
51-4070	a40557		Ground	Payson City
51-7228	a40557		Ground	Payson City
51-7388	a40557		Ground	Payson City
51-7572	a40557		Ground	Payson City
51-8442	a40557		Ground	Payson City
51-7277	a23879	151	Ground	Payson City
51-3499	a42050	28.08	Ground	Payson City

Municipal Payson Subarea

Ground Water Rights	Subtotal	5,935	ac-ft	
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Irrigation Company Payson					East Santaquin Irrigation Company, Salem Irrigation and Canal Company, Salem Pond Company, Spanish Fork South Irrigation Company, Spring Lake Water Works Company, Strawberry Highline Canal Company
Subarea Ground Water Rights & Shares	Subtotal	3,057	ac-ft	Ground	

Total Payson Subarea Ground Water Rights		20,159	ac-ft		
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Surface Water Rights

Water Right Number	Change #	CFS	ACFT		Name
51-6324			171.06	Surface	Wendell Howard Barney
51-6326			176.47	Surface	Wendell Howard or Nellie L. Barney
51-6437			258.73	Surface	Willy and Vivian G. Reimchissel
51-6438			224	Surface	Lavon E. Payne
				Surface	
51-8450			13.43	Surface	The Burningham Family Trust
51-7339			62.55	Surface	Thomas G. and Ruth M. Rogers
51-6324			128.29	Surface	Wendell Howard Barney
51-6326			70.59	Surface	Wendell Howard or Nellie L. Barney
51-6437			258.73	Surface	Willy and Vivian G. Reimchissel
51-8450			13.43	Surface	The Burningham Family Trust
51-7339			62.55	Surface	Thomas G. and Ruth M. Rogers
51-3891		0.056	2.8	Surface	Gerome I. Rasmusen
				Surface	
51-3668	10		200	Surface	Craig Dehart
51-7068			0.51	Surface	Leslie Loveless
51-7073			0.51	Surface	Day II Day, LLC
51-7074			0.51	Surface	Day II Day, LLC
51-7075			0.51	Surface	Day II Day, LLC
51-7077			0.51	Surface	Day II Day, LLC
51-7078			0.51	Surface	Day II Day, LLC
51-7081			0.51	Surface	Day II Day, LLC
51-7923			0.5	Surface	LSC Trust
51-7977	3		99.44	Surface	Theone W. & Kathleen G. Curtis
51-8030			0.5	Surface	Thomas Guy Larson
51-8077			1	Surface	Clinton Paul and Johanna Emilie Lindstrom
51-8170			8.81	Surface	HBD L.L.C.
51-8217			1.01	Surface	Thomas Guy Larson
51-4044	0.045		5.12	Surface	Loren S. Degraw
51-4766			339.28	Surface	Corp. of the Presiding Bishop of the LDS Church
51-5285	1.133		787.3	Surface	Corp. of the Presiding Bishop of the LDS Church
51-5284	0.615			Surface	Corp. of the Presiding Bishop of the LDS Church
51-4765	0.315		504.02	Surface	Corp. of the Presiding Bishop of the LDS Church
51-4767	1.4		703.36	Surface	Corp. of the Presiding Bishop of the LDS Church
51-6325			256.94	Surface	Far West Bank
51-6326			360	Surface	Wendell Howard or Nellie L. Barney
51-2297	0.25		16	Surface	Edward R. Stevens
51-3863	1		149.78	Surface	George H. Wilson
51-3672			40	Surface	Iris T. Lindstrom
51-7547			1.45	Surface	Larry H. and Elaine Farr
51-7786			20	Surface	Roger D. and Sandra B. Howells
51-8011			0.15	Surface	Leslie R. Southam
51-8012			0.15	Surface	Leslie R. Southam
51-8013			0.15	Surface	Leslie R. Southam
51-8014			0.15	Surface	Leslie R. Southam
51-8109			9	Surface	K. David Roberts Family Trust
51-8242			0.65	Surface	Leslie R. Southam
51-7029			1.45	Surface	Sara D and Patrick G Kirby
51-7030			1.45	Surface	Lance and Vondra Burrell
51-7035			1.45	Surface	K.S.O. Revocable Trust
51-7036			1.45	Surface	Blair and Kathy Proctor
51-7037			0.2	Surface	Leslie R. Southam
51-5417	0.25		92.09	Surface	Richard Dean and Mary Jaquelyn Thomas
51-2038	2		81.15	Surface	Michael W. Madsen
51-4785	0.5		5.76	Surface	J. Franklin Trevort
51-7421			200	Surface	W. S. Tanner
51-7427			200	Surface	J. S. McBeth

51-7423		304	Surface	Jesse Knight
51-7424		240	Surface	S. W. McClellan
51-7425		40	Surface	Clara Evans
51-7426		20	Surface	David Meyer
51-7427		160	Surface	J. S. Bills
51-7428		120	Surface	Lewis White
51-7429		20	Surface	Henry Drussell
51-7430		34	Surface	W. A. Hardy
51-7431		144	Surface	Geo. A. Peery
51-7432		24	Surface	A. B. Peery
51-7433		64	Surface	C. E. Miles
51-7434		56	Surface	F. E. Tanner
51-7435		40	Surface	John Tanner
51-7436		60	Surface	Jacob Hancock
51-7437		200	Surface	Wallace L. Clark
51-7438		320	Surface	Jos. S. Tanner
51-7439		80	Surface	Martha E. Hiatt
51-7440		20	Surface	J. J. Scharrer
51-7441		20	Surface	Benj. Drollenger
51-7442		100	Surface	J. B. Manwill
51-7443		46	Surface	Thos. Daniels
51-7444		34	Surface	Mary A. Smith
51-7445		40	Surface	Elbert Peery
51-7446		48	Surface	Charles Peery
51-7447		36	Surface	Frank Trevort
51-7448		36	Surface	Frank Clark
51-7449		40	Surface	John Clark
51-7450		28	Surface	Joseph Clark
51-7451		160	Surface	Levi and L. O. A. Clark
51-7452		10	Surface	Isaac A. Hancock
51-7453		30	Surface	Issac Alfred Hancock
51-7454		20	Surface	Goerge More
51-7455		30	Surface	Luci Wilson
51-1005	0.2	70.24	Surface	Spring Lake Water Works Company
51-1710	1.1	70.39	Surface	Frank M. Barnett
51-1717		11.12	Surface	Annette Louise Judd
51-3847	0.75	181.15	Surface	Arnold J. Smith
51-3848	0.75	60.25	Surface	Don E. Taylor
51-3849	0.75	318.65	Surface	Eldred C. Fisher
51-3850	0.75	318.65	Surface	Glen Bona and Kathy R. Smith
51-3851	0.75	255	Surface	Leroy Johnson
51-5810	0.15	5.24	Surface	Nedra Peart
51-8007		2.75	Surface	Reed R. and Evelyn M. Ekins
51-8437		0.45	Surface	Jed S. Stewart
51-8438		0.45	Surface	Steven T. Maddox
51-8439		0.45	Surface	Loafer Mountain Trust
51-8441		0.45	Surface	L. Dunn and Maren Dunn
51-8462		8.98	Surface	Adam N. and Karen N. Lee
51-8463		8.98	Surface	Adam N. and Karen N. Lee
51-8464		8.98	Surface	Jonathan Peterson
51-8452	0.75	3.07	Surface	J&E Roberts Salem, LLC
51-8481	0.009	2.05	Surface	Darrell L. and Janet M. Smith
51-6912		118.65	Surface	Reed R. and Evelyn M. Ekins
51-8464		8.98	Surface	Jonathan Peterson
51-8465		8.98	Surface	John H. Pope
51-3900	0.016	2.62	Surface	Karl M. and Marie G. Ashton
51-4802	0.055	9.35	Surface	Clyde Dallin Westwood
51-1318	0.167	3.78	Surface	Arthur Livingston
51-4039	0.03	1.41	Surface	Paul H. Bigler etal.
51-1343	0.11	3.78	Surface	Arthur Livingston
Private Payson Subarea Surface				
Water Rights	Subtotal	9,645	ac-ft	
51-1266	a29452	1400	Surface	Payson City
51-1711		3.25	Surface	Payson City (33.3%), Gooseneast Water Co. (41.13%), other (10%)
51-6272	a16278	23.5	Surface	Payson City
51-7974			Surface	
Municipal Payson Subarea				
Surface Water Rights	Subtotal	1,403	ac-ft	

Irrigation Company Payson				Duck Creek Irrigation Company, Salem Irrigation and Canal Company,
Subarea Surface Water Rights & Shares	5,302	ac-ft	Surface	Spanish Fork South Irrigation Company, Strawberry Highline Canal Company

Total ac-ft of Payson Subarea Surface Water Rights	16,350			
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TOTAL PAYSON SUBAREA WATER RIGHTS 36,509 ac-ft

Salem MNWA Subarea Water Rights

Ground Water Rights

Water Right Number	Change #	CFS	ACFT	Type	Name
51-1942		0.067	6.77	Ground	Ted Clifford & Jacqueline Voorhees
51-2089		0.022	2.04	Ground	Bert E. Thomas
51-2702		0.017	0.74	Ground	L. Dean Thomas
51-4700		0.015	0.07	Ground	L. Dean Thomas
51-6012		0.02	4.94	Ground	Zoe and Millard Ned Balzly
51-7584		0.05	13.88	Ground	Ted W. Larson Family Trust
51-7818			8.4	Ground	Millard N. & Zoe M. Balzly
51-1087			0.67	Ground	Russell and Eldora Gines
51-1227		0.015	7	Ground	Gisle Bearnson
51-1228		0.015	5.6	Ground	Sherman V. Bearnson Irrevocable Trust
51-1920		0.001	0.72	Ground	Ned H. Hansen Family Revocable Trust
51-3846		0.002	0.87	Ground	Donald R. Provstgaard
51-3892		0.089	11.37	Ground	Sherman V. Bearnson Irrevocable Trust
51-6151		0.015	1.59	Ground	Glade C. & Karen P. Lewis
51-6511			0.59	Ground	Chad D. and Jeanie P. Kimber
51-6512			0.59	Ground	Geri Flaker Trust
51-6513			0.59	Ground	Geri Flaker Trust
51-6514			0.59	Ground	Geri Flaker Trust
51-6927			1.4	Ground	Lyle J. Smart
51-8279			1	Ground	Phillip C. and Shirlee H. Diamond
51-2146		0.401	68	Ground	Rex E. and Sherrie H. Larsen
51-2560		0.045	13.24	Ground	Hyrum Christopherson
51-2589		0.111	6.22	Ground	Rex E. and Sherrie H. Larsen
51-2595		0.018	0.87	Ground	Rudolph Balzly
51-4751		0.015	2.43	Ground	Ron Wilson
51-5338		0.015	3.02	Ground	Paul K. and Brenda J. Westwood
51-5365		0.015	3.02	Ground	Paul K. and Brenda J. Westwood
51-5843		0.022	1.54	Ground	Greg and Cheryl Balzly
51-2144		0.111	1.68	Ground	Glen R. and Genevieve E. Larsen
51-2331		0.089	0.76	Ground	Roy Creer
51-2332		0.089	0.76	Ground	Roy Creer
51-2461		0.089	12.84	Ground	Milo C. and Gerladine L. Andrus
51-2462		0.178	21.46	Ground	Summit Creek Nursery L.L.C.
51-2463		0.089	21	Ground	Summit Creek Nursery L.L.C.
51-2703		0.056	19.76	Ground	Summit Creek Nursery L.L.C.
51-2824		0.015	4.37	Ground	Spencer Duane Nielsen
51-5358		0.015	2.99	Ground	Kurt and Janie Christensen Trust
51-5413		0.067	29.16	Ground	Gordon R. Warner
51-5552		0.015	2.85	Ground	Charles Edward & Valerie P. Wilson
51-6097		0.015	2.85	Ground	Alan Curtis
51-6330			1.73	Ground	John L. and Melanie M. Mecham
51-1258		0.015	0.45	Ground	Leo L. Gardner
51-1259		0.015	0.45	Ground	Leo L. Gardner
51-1285		0.015	0.45	Ground	Roman Catholic Bishop of SLC Corp.
51-1335		0.015	0.45	Ground	Margarett t. Bramwell
51-1494		0.013	2.56	Ground	Ralph W. & Lynda L. Harward
51-1588		0.5	40.5	Ground	Ted Clifford & Jacqueline Voorhees
51-2017		0.018	2.75	Ground	State of Utah Emergency Relief Administration
51-3020		0.015	1.8	Ground	Berdell Olsen and Kathy Olsen
51-3611		0.022	2.9	Ground	Clifford and Cosette Corless
51-4167		0.015	2	Ground	C. Hal & Sarah S. Rasmusson
51-4581		0.022	1.2	Ground	Arthur L. Hartvigsen
51-2110		0.5	15.86	Ground	Keith L. and Glenda B. Lyman
51-2176		0.334	160	Ground	David & William Evans
51-2551		0.111	2.45	Ground	Ralph H. Bramwell
51-2738		0.022	2.04	Ground	Keith W. and Afton L. Zobel
51-2984		0.022	1.73	Ground	Lynn R. Christensen
51-4812		0.015	2.65	Ground	Keith Lyman
51-4936		0.03	3.15	Ground	Marvin W. and/or Diane B. Luster
51-5014		0.015	1.73	Ground	George C. & Sonja P. Rasband
51-5346		0.015	1.5	Ground	Lois Jean Argyle
51-5522		0.015	1.45	Ground	Sace Broadcasting

51-6105		0.65	Ground	Spanish Fork Congregation of Jehovah's Witnesses
51-6122		0.89	Ground	Gina Olsen
51-6145		0.89	Ground	Steven L. and Pamela Clyde
51-6146		0.89	Ground	Rodney Blaine and Jan C. Hall
51-6148		0.89	Ground	Cecil L. and Patricia D. Loftin
51-6149		0.89	Ground	Jon and Marianne P. Hunter
51-6578		1.73	Ground	Gail S. Halvorsen
51-6677		1.25	Ground	William A. and Patricia M. Burk
51-6685		1.73	Ground	Cathy Silcox
51-7617		0.5	Ground	Michael P. and Lisa Lyman
51-1066	0.015	7.52	Ground	Ralph and Joyce H. Henderson
51-1182	0.015	0.45	Ground	Christine Robertson
51-1370	0.015	0.45	Ground	Michael A. & Rebecca Rothstein
51-1378	0.015	1.45	Ground	Manfred M. Arnold
51-1492	0.1	47.6	Ground	Robert Berrett & Carol Berett Family Trust
51-1524	0.015	10.8	Ground	Robert Berrett & Carol Berett Family Trust
51-1541	3	341	Ground	Spanish Fork Stake of the LDS Church
51-1555	0.027	5.61	Ground	Don Lamar Davis
51-1615	0.045	3.48	Ground	KVSJ Investment Co. LTD
51-1616	0.015	2.41	Ground	Thomas and Robin Wheatley
51-1882	0.446	82.41	Ground	Albert A. Tiffany
51-1975	0.022	0.46	Ground	Jay W. and Karen M. Snow
51-2035	0.223	60	Ground	Kent D. and Sharlene M. Cornaby
51-2036	0.223	1.58	Ground	Kent D. and Sharlene M. Cornaby
51-3755	0.015	1.73	Ground	John F. Marshall
51-3774	0.015	1.98	Ground	Don A. and Patricia A. Farley
51-3816	0.015	1.88	Ground	James S. & Lani E. Neer
51-3866	0.015	11.44	Ground	Michael J. Hansen
51-2211	0.009	1.5	Ground	Kay L. Gardner
51-2292	0.011	0.45	Ground	Alan and Brenda Hutchings 1995 Living Trust
51-2996	0.54	1.58	Ground	Ronald M. Braithwaite
51-3017	0.054	12.67	Ground	C. R. Mitchell
51-4981	0.015	2.46	Ground	Gus Ray Farley
51-6243		0.89	Ground	Byron M. & Lynn N. Villaverde
51-6308		0.87	Ground	John T. Morgan
51-6409	0.015	1.79	Ground	Derk & Karen Palreyman
51-8160		0.27	Ground	Alan and Brenda Hutchings 1995 Living Trust
51-8294		0.89	Ground	John T. Morgan
51-4087	0.03	2.08	Ground	Burrall D. & Jean A. Marshall
51-4088	0.03	2.07	Ground	Burrall D. & Jean A. Marshall
51-4486	0.015	1.65	Ground	Kent & Rosemary Ivie
51-2102	0.089	22.3	Ground	Howard Chuntz and Alison Chuntz
51-2233	0.1	9.4	Ground	Emma Taylor
51-2580	0.279	43.78	Ground	A. P. Abildskov
51-2581	0.056	7.95	Ground	A. P. Abildskov
51-7587	0.05	2.1	Ground	Ted W. Larson Family Trust
51-1039	0.092	10.58	Ground	LHD Real Estate, LLC
51-1340	0.094	1.6	Ground	Norman K. and Jessica H. Cluff
51-1352	0.045	2.74	Ground	Norman K. and Jessica H. Cluff
51-3624	0.045	6.44	Ground	LHD Real Estate, LLC
51-3814	0.011	2.1	Ground	Lew Christensen
51-4552	0.015	2.15	Ground	Jack & Barbara Sheen Family Trust
51-2584	0.067	25.6	Ground	Stewart J. & Lorraine Levanger Behling
51-7586	0.05	3.08	Ground	Ted W. Larson Family Trust
51-1520	0.022	6.7	Ground	John A. & Jean W. Riding
51-2050	0.2	17.06	Ground	Arthur L. and Lillie S. Francom
51-2437	0.045	2.73	Ground	C. F. Dixon
51-2743	0.045	2.73	Ground	Don H. Christensen
51-2746	0.045	2.69	Ground	W. R. Courtney
51-2928	0.015	0.78	Ground	FTN Farms L.L.C.
51-2981	0.015	0.14	Ground	Floyd Schram
51-2997	0.045	20.56	Ground	Charlotte F. Stewart
51-4749	0.013	5.12	Ground	Sterling L. and Rosamond S. Ballard
51-1120	0.03	0.45	Ground	J. David Garner
51-1171	0.015	0.41	Ground	Arthur Lacel Francom
51-1253	0.015	2.86	Ground	Arthur Lacel Francom
51-1257	0.015	0.45	Ground	K. W. Winnie

51-1879	1.5	32.56	Ground	Ivan L. Ballard
51-3029	0.044	5.64	Ground	Bert W. Carlson
51-3511	0.011	0.41	Ground	Arthur Lacel Francom
51-5420	0.015	1.53	Ground	Stanley P. and Marilyn Ballard
51-6688		1.73	Ground	L. Howard and Shellie Vanfleet
51-1058	0.015	1.73	Ground	Leroy D. Horrocks
51-1129	0.015	1.73	Ground	Don C. Pierce
51-1172	0.015	1.73	Ground	John A. Warren
51-1222	0.015	3.46	Ground	Paul M. Prince
51-1279	0.015	1.73	Ground	Lynn R. Christensen
51-1280	0.015	3.84	Ground	Luann C. and Larry S. Hansen
51-1363	0.5	2.87	Ground	Donald C. and Jane Ann Cole
51-1529	0.1	5.52	Ground	Luann G. Otten
51-1836	0.267	8	Ground	Orlean Christensen
51-1865	0.044	10.73	Ground	Ty Tingey
51-1880	0.011	0.9	Ground	Sterling Lee and Rosamond S. Ballard
51-2034	0.045	8.67	Ground	Andrew Petersen
51-4086	0.013	1.68	Ground	Willard and Eileen Kowallis
51-4091	0.134	2.28	Ground	Gerald Carlisle
51-4480	0.015	1.54	Ground	Michael LaFontaine
51-4487	0.015	1.73	Ground	David Stuart and Anita Jensen Charles
51-2234	0.067	3.26	Ground	K. T. Davis
51-2275	0.011	3.93	Ground	Clawson H. and Zonna Sheen Taylor
51-2371	0.178	1.67	Ground	Calvin & Lily Jane Sheen
51-2453	0.089	13.45	Ground	Clifton Carson
51-2454	0.045	7.54	Ground	Reo Clifton and Janice H. Carson
51-2457	0.007	1.43	Ground	Roscoe C. Hanks
51-2469	0.067	5.2	Ground	Frank Lynn Gardner
51-2492	0.045	1.7	Ground	Mary J. Pierce
51-2507	0.033	2.51	Ground	J. Lyne & Elizabeth G. Roberts
51-2536	0.223	32.5	Ground	Nebo School District
51-3003	0.022	2.51	Ground	Isabelle L. Rust
51-3005	0.007	0.65	Ground	H. Clyde Davis
51-4774	0.015	1.53	Ground	John D. Callister
51-4500	0.015	2.54	Ground	Howard F. Horrocks
51-4564	0.015	1.51	Ground	Evan J. & Miriam Theobald
51-6253		1.23	Ground	Michael Dean Hendrickson
51-2284	0.022	12.57	Ground	Isabell D. Stewart
51-2689	1	104.76	Ground	Harry Beddowes
51-2692	0.089	6.18	Ground	Melvin R. Hanks
51-2931	0.062	23.73	Ground	Erwin M. Spencer
51-4938	0.015	2.15	Ground	Larry L. & Diana B. Ballard
51-5192	0.015	1.34	Ground	Warren A. and Harriet R. Peterson
51-7731		1.35	Ground	Michael E. and Sundee D. Stone
51-1424	0.025	2	Ground	Reed E. Taylor
51-1673	0.042	5.13	Ground	L.M. Davis Inc.
51-4019	0.038	2.04	Ground	Roy N. Miller
51-4198	0.015	1.62	Ground	Marvin C. Baker
51-4550	0.015	1.45	Ground	Delbert F. Astin
51-4693	0.015	1.62	Ground	James D. and Debra K. Lovell
51-8165		1.37	Ground	Jacob C. Nostrom and Jacquelyn Nostro
51-1056	0.01	2.77	Ground	Victor P. Sabin
51-3481	0.045	10.28	Ground	Hal C. & Madge L. Johnson
51-3821	0.03	10.28	Ground	Hal C. & Madge L. Johnson
51-4254	0.015	1.84	Ground	Robert C. & Linda K. Nelson
51-6269	0.015	1.73	Ground	Everett Miller
51-6312	0.015	1.87	Ground	Pauline T. Hughes Family Trust
51-6403	0.015	1.48	Ground	Robert and Kristen Lamb
51-6696		1.45	Ground	Larry and Lynda Wright
51-2806	0.033	4	Ground	J. Lynne and Elizabeth Roberts Jr.
51-2827	0.086	3.76	Ground	Adam N. and Karen N. Lee
51-2861	0.315	8.55	Ground	Bench Land Water Association Inc.
51-2869	0.043	2.87	Ground	Olla Hellen Selman Family Revocable Trust
51-2897	0.062	5	Ground	Adam N. and Karen N. Lee
51-2919	0.062	4	Ground	Olla Hellen Selman Family Revocable Trust
51-4836	0.015	2.01	Ground	Jean C. Limb
51-5190	0.015	1.59	Ground	David W. Watson

51-5296	0.015	1.84	Ground	Paul R. Olsen
51-1125	0.015	1.73	Ground	Orrin P. Miller
51-1173	0.015	1.73	Ground	Shawn T. and Alesha Wride
51-1199	0.015	1.73	Ground	Ross L. and Betty Diamond
51-1290	0.015	1.73	Ground	Dan E. and Gladys J. Vacher
51-1291	0.015	1.73	Ground	W. W. Miller
51-1549	0.052	8	Ground	Lawrence Limb
51-3030	0.028	1.81	Ground	William and Holly Beifuss
51-3033	0.013	1.73	Ground	Welby L. Turpin
51-3630	0.015	1.25	Ground	Thaddius D. and Zealiah Cole
51-4008	0.014	1.73	Ground	Arlo E. Pierce
51-4084	0.013	1.73	Ground	Robert and Louis Justet
51-4179	0.015	1.56	Ground	Ross C. Swenson
51-4184	0.015	1.56	Ground	Marvin Limb
51-4233	0.015	1.56	Ground	Pierre A. Schutz
51-4239	0.014	1.73	Ground	Arlo E. Pierce
51-4243	0.015	1.79	Ground	Nicholas J. Lopez
51-4598	0.015	2.18	Ground	Lucy Taylor Carnaby
51-4665	0.015	2.01	Ground	Bruce & Christine Fawson
51-2083	0.004	1.29	Ground	N. C. Christenson
51-2401	0.022	6.13	Ground	Max Depew
51-2808	0.137	3.65	Ground	The Nelson R. and Dawn P. Taylor Family Trust
51-2828	0.017	2	Ground	Lawrence Limb
51-2905	0.031	2	Ground	Dan E. Vaucher
51-4793	0.014	0.45	Ground	Kevin Jones
51-4803	0.015	1.51	Ground	Sharlene Tyler
51-4899	0.015	1.56	Ground	Marsha Jane Coss Frazee Trust
51-1231	0.015	1.73	Ground	J. D. Francom
51-1471	0.013	1.33	Ground	Kim B. and Karen Kay Montague
51-1917	0.033	1.7	Ground	Arthur L. & Lillie S. Francom
51-4575	0.015	1.17	Ground	Donald L. and Linda L. Von Achen
51-4601	0.015	1.59	Ground	Dell Jay Christensen
51-4733	0.015	1.53	Ground	Richard Lee Openshaw
51-5255	0.015	1.62	Ground	Evan Johnson
51-6093	0.015	1.45	Ground	Ross C. and Karin M. Nelson
51-6116	0.015	1.59	Ground	Hal J. and Lisa D. Peery
51-2270	0.002	0.45	Ground	Beneficial Life Insurance Company
51-7553		46.93	Ground	Brigham Young University
51-1119	0.008	1	Ground	Bruce B. and Janice M. Hall
51-1261	0.015	1.73	Ground	A. Thomas Hunt
51-1392	3	320	Ground	Brigham Young University
51-1422	0.015	9.3	Ground	Brigham Young University
51-1573	1	44.44	Ground	Brigham Young University
51-1597	5.22	97	Ground	Brigham Young University
51-3025	0.013	1.73	Ground	Melvin N. Bangerter
51-8153		1.86	Ground	Yvonne K. Erickson
51-8408		0.84	Ground	Margie K. Twitchell Family Living Trust
51-8490		1	Ground	Donald E. and Susie E. Willes
51-8505		0.5	Ground	Andrew and Nichole Neves
51-8520		1.47	Ground	Kim Langston
51-2804	0.61	72.7	Ground	Brigham Young University
51-4726	0.015	1.45	Ground	Lyle Smart Family Limited Partnership
51-4982	0.015	1.56	Ground	David V. and Jayne H. Clare
51-5274	0.015	2.05	Ground	Delmer C. & Mary Lois Stott
51-5545	0.015	1.53	Ground	Richard B & Wilma B. W. Riddle
51-7042	0.015	1.93	Ground	Lyle J. Smart
51-7097		1.81	Ground	B. Richard and Janiel J. Orton
51-1377	0.015	1.73	Ground	Wilford E. Hunt
51-1396	0.015	0.45	Ground	Vera H. Oakey
51-1404	0.015	1.73	Ground	Amelia T. Gull
51-1818	0.007	0.67	Ground	Stephen F. McCormick
51-3026	0.013	1.09	Ground	Lynn Ldee Cloward
51-3616	0.025	3.01	Ground	Frank E. and Shauna Mitchell
51-4000	0.016	2.41	Ground	Ronald S. Ostler
51-4097	0.013	1.56	Ground	Christopher K. and Sorena J. Marble
51-4270	0.015	1.47	Ground	Frank C. Nelson
51-4608	0.015	1.56	Ground	Leray Boyd Warren

51-4685	0.013	1.65	Ground	Paul R. and Pearl H. Murray
51-6373		1.53	Ground	Kaye B. Jones
51-6415	0.015	2.01	Ground	William D. Luster
51-6723		3	Ground	Byron R. and Janiel J. Orton
51-1376		0.44	Ground	Russell T. and Talina L. McConahay
51-3596	0.013	1.73	Ground	Buddy Ross and Darlene H. Bunnell
51-3643	0.013	1.73	Ground	Wayne & Rae A. Shepherd
51-3823	0.015	2.34	Ground	Jerry Christensen
51-3825	0.015	2.73	Ground	Orvell and Neva Jackson
51-6394	0.015	1.59	Ground	James M. Anderson
51-6416	0.015	1.73	Ground	Brent A. Tycksen
51-6417	0.015	1.73	Ground	Bryce and Denise Adams
51-6418	0.015	1.73	Ground	Brian R. Anderson
51-6419	0.015	1.73	Ground	Jay B. & Rebecca S. Crowther
51-6420	0.015	1.73	Ground	David Conant
51-6605		1.73	Ground	White City Trust
51-6653		1.73	Ground	Lawrence and Mary Ann Korman
51-6734		0.45	Ground	Cope Family Trust
51-8291		1	Ground	Craig and Jodie Allred
51-8292		1	Ground	Craig and Jodie Allred
a27288		2	Ground	Thomas G. and Ruth M. Rogers
a41376		7.74	Ground	East Jordan Irrigation Company
51-2852		1.16	Ground	Gordon Jones
51-2853		2.39	Ground	Gordon Jones
51-3000	0.015	0.76	Ground	William H. Wood
51-4789	0.015	1.45	Ground	Robert R. Williams and McKielle S. Williams
51-4790	0.015	1.31	Ground	David L. and Susan T. Gardner
51-4850	0.015	1.73	Ground	Richard Page and Vickie Stone Nielsen
51-4851	0.015	1.73	Ground	Glen and Trudy Bradford
51-4934	0.015	1.59	Ground	Glen E. and Florence M. Hanks
51-5196	0.013	1.52	Ground	Randall E. and Chris A. Dodge
51-7024		2.99	Ground	Francis E. and Sydney C. Leany
51-7410		1.73	Ground	Robert L. and Bonnie Jean Riding
51-7596		1.45	Ground	Nicholas I. and Rachel D. Button
51-7891		1	Ground	Lawrence and Mary Ann Korman
51-8693		1.62	Ground	Nathan Maughan and Natalie Maughan
51-8699		1.62	Ground	Gordon Jones
51-6406		1.45	Ground	Karl E. Wesson
51-6732		0.45	Ground	Vernal M. Pulley Family Trust
51-6733		0.45	Ground	Vernal M. Pulley Family Trust
51-6735		0.45	Ground	Vernal M. Pulley Family Trust
51-6736		0.45	Ground	Vernal M. Pulley Family Trust
21-2958		1.79	Ground	Vernal M. Pulley Family Trust
51-7597		0.55	Ground	Karl and Brenda Wesson Family Trust
51-2682		1.29	Ground	David M. and Marla S. Hughes
51-2818	0.043	1.59	Ground	Paul A. Trotter
51-2859	0.04	1.83	Ground	Sally M. and Val Douglas Holt
51-2938	0.016	1.09	Ground	Paul Steven and Pauline Y. Penrod
51-2962		2.8	Ground	David M. and Marla S. Hughes
51-4758	0.015	1.71	Ground	Jeffery J. and Camilla Simonsen
51-4809	0.015	1.45	Ground	Kris Jamd and Lisa T. Cole
51-4906	0.015	1.56	Ground	Monte Hans Larsen
51-7230		1	Ground	Wallace L. Trotter
51-7872		3.92	Ground	Christopher M. and Amy C. Brockbank
51-7919		1	Ground	David M. and Marla S. Hughes
51-3772		0.44	Ground	David M. and Marla S. Hughes
51-3885	0.013	0.8	Ground	Vincent C. and Stephanie R. Hamilton
51-4561	0.015	0.85	Ground	Kent A. and Ann W. Burton
51-6249	0.015	1.59	Ground	David M. and Marla S. Hughes
51-6676		1.43	Ground	Annette Darling
51-6724		1.59	Ground	W. Keith & Bonita Lamvourne Family Trust
51-7943		6	Ground	David M. Hughes
51-4226		14.74	Ground	Harold E. Davis Family Limited Partnership
51-1534	1.77	131.48	Ground	Harold E. Davis Family Limited Partnership
51-1983		10.42	Ground	Harold E. Davis Family Limited Partnership

51-1984		11.01		Ground	Harold E. Davis Family Limited Partnership
Private Salem Subarea Ground	Subtotal	2,746.90	ac-ft		
51-7337	a23777	13		Ground	Salem City
51-1336	a37463	1447.96		Ground	Salem City
51-1035	a20381	197.876		Ground	Salem City
51-2374	a19192	482		Ground	Salem City
51-1439	a19192			Ground	Salem City
51-2878	a19192			Ground	Salem City
51-6661	a19192b	1810		Ground	Salem City
51-6189	a19192b			Ground	Salem City
51-7092	a25241	9.75		Ground	Salem City
51-7093	a25241	3.25		Ground	Salem City
51-7094	a25241	3.25		Ground	Salem City
51-7095	a25241	3.25		Ground	Salem City
51-7096	a25241	3.45		Ground	Salem City
51-7160	a21662	140		Ground	Salem City
51-1794	a40178	13.458		Ground	Salem City
51-3762	a40178			Ground	Salem City
51-5001	a40178			Ground	Salem City
Ground Water Rights	Subtotal	4,127	ac-ft		
Irrigation Company Salem					
Subarea Ground Water Rights & Shares	Subtotal	2,958	ac-ft	Ground	Salem Irrigation and Canal Company, Salem Pond Company, Spanish Fork South Irrigation Company, Strawberry High Line Canal Company
Total Salem Subarea Ground Water Rights		9,832	ac-ft		

Surface Water Rights

Water Right		CFS	ACFT	Name	
Number	Change #				
51-1015		1.91	286	Surface	Keith L. & Glenda B. Lyman
51-7588		0.84	330	Surface	Ted and Betty Rae Larson Family Trust
51-8659			24.72	Surface	Norman K. and Jessica H. Cluff
51-1527			62.28	Surface	Norman K. and Jessica H. Cluff
51-2856		0.067	6.42	Surface	Gerald Leon Carlisle
51-3004		0.013	1.07	Surface	H. Clyde Davis
51-2874		0.1	3.39	Surface	Leroy & Maida Despain
51-1726		0.1	10.31	Surface	Carl M. Nybo
51-6125		0.04	3.73	Surface	Peter A. Jeppsen
51-4741		0.015	1.08	Surface	Harold E. Davis
51-6015		0.015	10.86	Surface	Harold E. Davis
51-1714		3	59.38	Surface	Harold E. & Lorna M. Davis
51-1715		0.2	61.59	Surface	Harold E. & Lorna M. Davis
Private Salem Subarea Surface					
Water Rights	Subtotal		861	ac-ft	
51-2721			904.97	Surface	Salem City
Municipal Salem Subarea					
Surface Water Rights	Subtotal		905	ac-ft	
Irrigation Company Salem					
Subarea Surface Water Rights & Shares		4,098	ac-ft	Surface	Salem Irrigation and Canal Company, Spanish Fork South Irrigation Company, Strawberry High Line Canal Company
Total Salem Subarea Surface Water Rights			5,864	ac-ft	
TOTAL SALEM SUBAREA WATER RIGHTS			15,696	ac-ft	

Santaquin MNWA Subarea Water Rights

Ground Water Rights

Water Right Number	Change #	CFS	ACFT	Type	Name
51-1155		0.015	1.73	Ground	Raymond S. Jackson
51-7640			0.7	Ground	Garry Thatcher
51-4547		0.015	2.71	Ground	Melvin Meredith
51-1097		0.015	0.87	Ground	Clement H. Johnson
51-2412		0.11	0.94	Ground	Paul Virgil Meredith
51-1454			6	Ground	Janice Phelps Anderson
51-4586			2.71	Ground	Payson Fruit Growers
51-7381			96.28	Ground	Payson Fruit Growers
51-7669			6.75	Ground	Payson Fruit Growers
51-7830			61.26	Ground	Payson Fruit Growers
51-8139			38.74	Ground	Payson Fruit Growers
51-8033			0.45	Ground	Kevin Denning
51-7634			0.7	Ground	Melvin & Muriel Meredith
51-7635			0.7	Ground	Melvin & Muriel Meredith
51-2277		0.004	0.45	Ground	McMullin Farm Properties LC
51-6139		0.015	1.62	Ground	David MuMullin
51-6210		0.015	0.98	Ground	Guy J. and Hannah M. Farley
51-7071			0.51	Ground	Gary R. and Cheryl C. Evans
51-1594			5.01	Ground	McMullin Farm Properties LC
51-3865		0.013	1.73	Ground	Donna Crawford
51-3882		0.013	1.49	Ground	Richard & Reta P. Taylor
51-3889		0.012	1.87	Ground	Guy Junior and Hannah M. Farley
51-4490		0.026	3.32	Ground	Walter F. & Jean M. Limb
51-7632			0.67	Ground	Paul B. and Kathleen C. Hansen Family Trust
51-7633			0.85	Ground	Paul B. and Kathleen C. Hansen Family Trust
51-1766		0.167	70	Ground	Holladay Field Ditch Company
51-1767		0.178	75	Ground	Holladay Field Ditch Company
51-1768		0.156	66	Ground	Holladay Field Ditch Company
51-1769		0.156	66	Ground	Holladay Field Ditch Company
51-1770		0.145	61	Ground	Holladay Field Ditch Company
51-1899		0.134	16.5	Ground	Alan J. and Terry M. Christensen
51-1900		0.134	16.62	Ground	Dustin Cox and Kimberly Cox
51-1991		0.245	103.8	Ground	State of Utah Board of Water Resources
51-1992		0.087	36.9	Ground	State of Utah Board of Water Resources
51-1993		0.245	103.8	Ground	State of Utah Board of Water Resources
51-1995		0.156	66.1	Ground	State of Utah Board of Water Resources
51-2032		0.033	3.6	Ground	Lois J. Davis
51-2037		0.033	8.9	Ground	Parley Jensen
51-3765		0.013	1.73	Ground	Chad Cold and Kieara Heiselt
51-3766		0.013	2.52	Ground	Rex L. and Thora Behling
51-3810		0.013	2	Ground	Doral Hodgkinson
51-4170		0.015	3.48	Ground	Marijean Bagby
51-4175		0.013	0.45	Ground	Joseph W. and Marijean Bagby
51-1060		0.015	0.56	Ground	Michael C. and Pamela Jo Akin
51-1062		0.015	2.83	Ground	Reed McMullin
51-1104			4.5	Ground	Taylor Ranch
51-2274		0.027	4.67	Ground	A. J. Bowers
51-2782		0.055	3.57	Ground	Lewis A. Hiatt
51-3620		0.013	1.73	Ground	Gregory T. and Nieves Perez Knapp
51-3632		0.013	0.29	Ground	Wayne Assay
51-5415			0.66	Ground	James W. and Sharrie C. Webster
51-6049		0.015	3	Ground	Myrl B. Silcox Trust
51-6181		0.015	1.53	Ground	Willetta Hogan
51-6196		0.015	1.59	Ground	Richard L. Behling
51-7519			1.45	Ground	Myrl B. Silcox Trust
51-7647			0.7	Ground	Chad Don and Ashlee Rowley
51-4178		0.015	1.52	Ground	Rex L. Behling
51-4189		0.015	0.69	Ground	Roger and Linda Jensen Family Living Trust
51-4237		0.015	1.73	Ground	Glen Heatherly
51-4533		0.015	1.87	Ground	Craig J. & Carey Lundell
51-6383		0.015	1.56	Ground	Ted and Cynthia Peacock
51-6486		0.015	1.62	Ground	Byron L. and Terry Ann Harward
51-6516			1	Ground	James W. and Geniel L. Pino

51-6526		0.015	2.01	Ground	Brad W. Wilcox
51-6704			1.67	Ground	Leann and rodney H. Newman
51-6901			0.66	Ground	R. Cory and Mary Kay Brereton
51-8133			0.45	Ground	Genevieve Burningham
51-1423		1.92	104.08	Ground	Cherry Hill Farms Inc.
51-1454			4.5	Ground	F. H. Bennion
51-4472		0.015	3	Ground	J. Reed Rowley
51-4586			2.71	Ground	Payson Fruit Growers
51-4621		2.329	704	Ground	Dave McMullin
51-4896		0.015	1.45	Ground	Calvin Ricki Rowley
51-4907		0.015	1.76	Ground	Drew E. & Ann M. Dockstader
51-7381			24.07	Ground	Payson Fruit Growers
51-7405			67.18	Ground	South Shore Farms
51-7636			0.7	Ground	Lloyd D. and Anita B. Peterson
51-7638			0.7	Ground	Shaun M. and Brooke N. Cowden
51-7639			0.56	Ground	James and Angie Fillmore
51-7641			0.7	Ground	William M. and Kristy L. Beck
51-7669			5.06	Ground	Payson Fruit Growers
51-7830			15.32	Ground	Payson Fruit Growers
51-1356			148.59	Ground	Payson Fruit Growers
51-2711		0.045	2.13	Ground	Dave McMullin
51-6554			0.7	Ground	Robert D. and Cara L. Rowley
51-6786			383.36	Ground	South Jordan Canal Company
51-6793			109.32	Ground	McMullin Orchards Inc.
51-7082			0.45	Ground	Scott Dockstader
51-7083			4.49	Ground	McMullin Orchards Inc.
51-8139			9.69	Ground	Payson Fruit Growers
a33103			77.44	Ground	Curran Creek Farms LLC
a40302			110.08	Ground	North Jordan Irrigation Company
53-1460			406.56	Ground	East Jordan Irrigation Company
51-1367		0.015	0.45	Ground	Cherry Hill Farms Inc.
51-1464			1.82	Ground	Kenyon L. and Irene Farley
51-4099		0.015	0.96	Ground	Rex L. Greenhalgh
51-4252		0.015	1.6	Ground	Karl D. & Naome T Greenhalgh
51-6303			3	Ground	Fred Openshaw
51-896			51.85	Ground	Cherry Hill Farms Inc.
51-5368		0.015	1.59	Ground	Kent D. Broadbent
51-5564			1.65	Ground	Kenyon L. and Irene Farley
51-7302			1	Ground	Jaussi Enterprises Family Trust
51-7342			3	Ground	Jaussi Family Trust
51-8658			1.59	Ground	Claude A. Rowley
53-1080		3.63	399.89	Ground	Cherry Hill Farms Inc.
53-1746		0.134	3.25	Ground	Cherry Hill Farms Inc.
53-1639	a33103		77.44	Ground	Curran Creek Farms LLC
51-5439		0.015	1.13	Ground	Janis Turnbull
51-6248		0.015	1.73	Ground	Steven M. Prescott
51-7889			0.59	Ground	Calvin Wall
51-1323		2	53.84	Ground	Wilber Shaw
51-3777		0.013	1.53	Ground	Dannie D. & Sheila Ross
51-3899		0.015	1.56	Ground	Todd L. Sperry and Debra J. Sperry
51-4162		0.015	1.13	Ground	William Ferguson
51-4686		0.015	1.93	Ground	Ned H. Hiatt
51-6307			50	Ground	William James and Joann J. Ferguson
51-6382		0.015	1.62	Ground	Max S. Mitchell
51-6877			1.27	Ground	George Baker
51-8394			53.84	Ground	Santaquin Special Service District
51-1252		0.015	1.87	Ground	Glen E. Thomas
51-6198		0.015	1.62	Ground	John Charles Smith
51-6199		0.015	1.62	Ground	Jack N. Lyman
51-6477		0.015	1.79	Ground	Richard Lowe
51-3839			17.35	Ground	Pamela Mendenhall
51-8625	a40453		5	Ground	Robert Perry
51-1994		0.178	75	Ground	State of Utah Board of Water Resources
51-3861			1.11	Ground	Jeff and Julie A. Carlisle
51-1142		0.189	4.64	Ground	R. J. Meyers
51-2712		0.089	12.95	Ground	Albert R. Hudson
51-2720		0.015	4.01	Ground	Ricky and Paula Taylor
51-2970		0.067	18.55	Ground	Oran Wall
51-2761		0.015	5.2	Ground	Jack N. Lyman
51-2860		0.064	3.81	Ground	Blaine C. Jones

51-7598		1.28	Ground	David W. and Sandra Holliman
51-1402	0.022	8.02	Ground	Brent R. and ScottJ. Sumsion
51-1436	0.02	0.51	Ground	Monte R. Depew
51-1442	0.064	3.81	Ground	Blaine C. & Norma H. Jones
51-3780	0.013	1.65	Ground	T. M. and Joy M. Engle
51-4098	0.015	1.25	Ground	Karl M. and Marie F. Ashton Family Trust
51-4230	0.015	1.28	Ground	Leslie and Judy Chappell
51-4683	0.015	1.59	Ground	Alfred Johnson
51-6537		1.11	Ground	David W. and Sandra Holliman
51-6671		2.15	Ground	Shayne L. and Tresa L. Ahlin
51-6863		1.73	Ground	Willies Landing
54-1297	a39709	1	Ground	Darryl and Jessica Depew
51-2877	0.26	40.43	Ground	David and Carol Sanchez
51-1345	0.015	0.45	Ground	Grant A. L. Johnson
51-1213	0.015	0.45	Ground	Mark Bartholomew
51-1451	3.52	1219.76	Ground	State of Utah Board of Water Resources
51-4568	0.015	0.75	Ground	Goerge Rothwell
51-2857	3.48	1219.76	Ground	State of Utah Board of Water Resources
51-2965	0.015	3.39	Ground	George H. Allen
51-2994	0.025	2.62	Ground	George H. Allen
51-7243		2	Ground	Stanley Robbins
51-270	0.173	9.35	Ground	Shirl L. Ekins
51-304	0.013	1.73	Ground	Shirl L. Ekins
51-605	0.015	1.65	Ground	Shirl L. Ekins
51-664	0.013	1.13	Ground	Shirl L. Ekins
51-843	0.015	10.86	Ground	Shirl L. Ekins
51-844	0.015	1.95	Ground	Shirl L. Ekins
57-10400	a40459	212.96	Ground	East Jordan Irrigation Company
51-1083	0.125	1.18	Ground	Norman G. Beardall
53-1080	3.63	400	Ground	Rowley's South Ridge Farms
51-2945	0.025	5.85	Ground	Milton Jack Jarvis
53-1716		0.028	Ground	James Doran Kay and Susan Kay
51-3869	0.013	1.73	Ground	Joseph F. & Delores Fowers
51-4716	0.015	1.65	Ground	Aaron L. and Julie Jones
57-10421	a41745	7.74	Ground	East Jordan Irrigation Company
Private Santaquin Subarea Ground				
Water Rights	Subtotal	7,220	ac-ft	
51-1347	a39488	0	Ground	Santaquin City
51-1348	a16256	1795.5	Ground	Santaquin City
53-1675	a26452a	121	Ground	Santaquin City
53-1496	a25719	526.31	Ground	Santaquin City
51-7045	a35122	224.77	Ground	Santaquin City
51-8394	a40536	53.84	Ground	Santaquin City
Municipal Santaquin Subarea				
Ground Water Rights	Subtotal	2,721	ac-ft	
Irrigation Company Santaquin				
Subarea Ground Water Rights & Shares	Subtotal	4,001	ac-ft	Ground East Santaquin Irrigation Company, Spring Lake Water Works Company, Strawberry High Line Canal Company, Summit Creek Irrigation & Canal Company
Total Santaquin Subarea Ground Water Rights		13,943	ac-ft	

Surface Water Rights

Water Right				
Number	Change #	CFS	ACFT	Name
51-4838		0.015	2.28	Surface Donnel J. and Denise Willey
51-1032		0.001	3.99	Surface C. L. Belcher
51-1012		0.002	2.8	Surface C. Flanders
51-1029		0.083	63.81	Surface CW & CW Limited Partnership
51-1727		0.25	43.68	Surface Jack Hudson
51-1724		5	204	Surface Andrew A. Borgeson
51-1009		1.89	1234.23	Surface Summit Creek Irrigation & Canal Company
51-8582			411.4	Surface Summit Creek Irrigation & Canal Company
51-1724		5	102	Surface Andrew A. Borgeson
51-1161			841	Surface Summit Creek Irrigation & Canal Company
Private Santaquin Subarea Surface		Subtotal	2,909	ac-ft

51-1013		1448		Surface	Santaquin City
51-1347	a39488	1824.423		Surface	Santaquin City
Municipal Santaquin Subarea	Subtotal	3,272	ac-ft		
Irrigation Company Santaquin					Strawberry High Line Canal Company, Summit Creek Irrigation &
Subarea Surface Water Rights &		5,945	ac-ft	Surface	Canal Company
Total Santaquin Subarea Surface Water Rights		12,127	ac-ft		
TOTAL SANTAQUIN SUBAREA WATER RIGHTS		26,069	ac-ft		

Spanish Fork MNWA Subarea Water Rights

Ground Water Rights

Water Right Number	Change #	CFS	ACFT	Type	Name
51-2106		0.007	1.08	Ground	Utah County
51-2107		0.004	1.08	Ground	Utah County
51-2115		0.011	1.26	Ground	Kathyren F. Brown
51-2116		0.011	1.26	Ground	Kathyren F. Brown
51-2130		0.007	0.35	Ground	Gerald L. Hill
51-2139		0.056	2.76	Ground	Gerald L. Hill
51-2215		0.004	1.08	Ground	Utah County
51-2216		0.004	1.08	Ground	Utah County
51-2670		0.007	0.35	Ground	Gerald L. Hill
51-4863		0.022	2.44	Ground	Frank E. Christianson
51-5004		0.015	1.81	Ground	Ricky D. & Connie B. Hansen
51-7227			0.57	Ground	Gilmer R. and Dorothy J. Nielsen
51-7263			0.45	Ground	Leslie Ann McDonald Haderlie
51-1287		0.015	5.6	Ground	Don Floyd & Shiela Phillips
51-1374		0.015	3.19	Ground	Gilmer R. and Dorothy J. Nielsen
51-1574		0.015	2.8	Ground	Kathyren F. Brown
51-3609		0.017	1.51	Ground	Utah County
51-3757		0.015	1.62	Ground	David Keith and Karla J. James
51-4015		0.013	1.14	Ground	Kyle L. Morris
51-6193			1.56	Ground	Kyle L. Morris
51-6389		0.015	1.73	Ground	Karl Blunck
51-1067		0.1	2.8	Ground	Keith Allen Williams
51-1248			8.88	Ground	Loafer Mountain Enterprises, LC
51-1295		0.015	1.87	Ground	Reed J. Banks
51-1353		0.015	1.4	Ground	Delles F. Nilsen
51-1410		0.015	1.87	Ground	Reed J. Banks
51-1472		0.094	1.87	Ground	Reed J. Banks
51-3489		0.059	1.76	Ground	Hersehel Woodhouse
51-3658		0.033	1.51	Ground	Janice J. Anderson
51-4188		0.015	1.51	Ground	Judy Evans
51-4236		0.015	1.67	Ground	Salt Lake Exchange Accomodations 383, L.L.C.
51-6096		0.015	2.07	Ground	Jeol K. and Lee Ann Rogers
51-6377			1.59	Ground	Opal and Joan Parry
51-6446		0.015	1.59	Ground	Alan Mecham
51-6581		0.015	1.73	Ground	Jerald and Lorene Swenson
51-6667			1.4	Ground	Jerald B. & Lorene C. Swenson
51-6802			1.13	Ground	Frank and Lee A. Leach
51-8407			0.45	Ground	Bennie Creek, L.C.
51-2169		0.009	5.85	Ground	Swenson Properties, LLC
51-2312		0.067	3.86	Ground	Gene L. & Melva N. Prior
51-2333		0.1	4.44	Ground	Marilyn Ruth Hanson
51-2368		0.019	0.6	Ground	Joel K. & Leeann Rogers
51-2903		0.016	1.86	Ground	Gene L. & Melva N. Prior
51-5348		0.038	0.85	Ground	Thomas R. Zabriskie
51-5409		0.015	1.62	Ground	Stanley M. Littlefield
51-8702			2	Ground	Bennie Creek, L.C.
51-2133		0.027	2.19	Ground	DKT Properties, LC
51-2173		0.089	3.1	Ground	Eldon W. Barney
51-2196		0.015	2.18	Ground	Delles F. Nilsen
51-2348		0.054	1.76	Ground	Trudy Hudson
51-2367		0.033	2.07	Ground	Jesus and Julie Ann Rodriguez
51-2985		0.013	1.14	Ground	Paul Lofgreen
51-4801		0.015	0.83	Ground	Zabriskie Farms
51-4912		0.015	0.95	Ground	Dennis Shiozawa
51-4935		0.015	1.79	Ground	Lacey Banks
51-4957		0.015	5.6	Ground	Brent E. Money and Kris W. Money
51-5003		0.015	2.13	Ground	Frank & Arlene J. Gull
51-1051		0.012	1.2	Ground	DKT Properties, LC
51-1179		0.015	0.97	Ground	George Money
51-1298		0.015	1.12	Ground	F. Reed Hansen
51-1748		0.007	1.4	Ground	Delles F. Nilsen
51-1813		0.013	5.6	Ground	Earnest Roach Farms Inc.

51-3663	0.015	0.77	Ground	Jacob M. Ream
51-4247	0.015	1.55	Ground	Glen S. Taylor
51-4483	0.013	0.93	Ground	Aaron R. Stephens
51-4584	0.015	1.09	Ground	John F. & Lenna Mendenhall
51-6076	0.015	1.29	Ground	DKT Properties, LC
51-6161	0.015	1.79	Ground	Jed R. Mitchell
51-6542		1.59	Ground	Darin G. Stephens
51-6577		2.99	Ground	Triple Bar M Ranch, LLC
51-6711		2.2	Ground	Paul J. and Ann R. Roach
51-7414		1.14	Ground	Jeffrey F. and Cindy Nelson
51-7836		2.6	Ground	Fort Field Little Dry Creek Water Users Assn.
51-7886		0.87	Ground	Bryan and Tasia Ottesen
51-8675		1.01	Ground	Ernest Roach Farms Inc.
51-5234	0.015	1.79	Ground	J. Kent thorne, LLC
51-5331	0.015	2.23	Ground	Gary Thomas
51-5333	0.015	1.46	Ground	Madson Family Trust
51-5688		3.22	Ground	Ernest Roach Farms Inc.
a28269		2.6	Ground	Fort Field Little Dry Creek Water Users Assn.
51-1236	0.015	4.76	Ground	Fred W. Johnson
51-1244	0.015	3.13	Ground	W. Sherald James and Carl James
51-1350	0.015	0.84	Ground	Nature Sunshine Products
51-1525	0.022	5.6	Ground	Nate Hales Ranches Inc.
51-1595	0.015	1.82	Ground	Paul D. Johnson
51-1636	0.074	8	Ground	W. Sherald James and Carl James
51-2199	0.167	17.15	Ground	Roy L. Johns
51-2200	0.089	2.23	Ground	J. Ross Nielsen
51-2210	0.045	2.32	Ground	Burgis and Gladys Larsen
51-2372	0.033	0.81	Ground	Ralph E. Boyack
51-3590	0.015	1.68	Ground	Burgis and Gladys Larsen
51-3682	0.045	19.6	Ground	W. Sherald James and Carl James
51-3683	0.045	1.09	Ground	W. Sherald James and Carl James
51-3684	0.045	1.09	Ground	W. Sherald James and Carl James
51-5381	0.015	10.86	Ground	Ralph G. Jex
51-5518	0.074	4.56	Ground	W. Sherald James and Carl James
51-1185	0.025	1.4	Ground	Lynn E. and Joanne D. Jones
51-1381	0.015	1.27	Ground	Mark B. Durrant
51-1409	0.015	1.05	Ground	Terry H. Morrill
51-1447	0.028	2.01	Ground	Gerald L. Hill
51-1614	0.1	13.72	Ground	Joan Bateman
51-1731	0.067	4.2	Ground	Gerald L. Hill
51-1857	0.067	4.2	Ground	Union Pacific Railroad
51-1937	0.156	1.6	Ground	Mckay and Pamela Platt
51-1980	0.045	0.87	Ground	Lynn & Marilyn Sorensen
51-5304	0.015	0.9	Ground	R. Kevin and Candy J. Barker
51-5497		0.73	Ground	Sorensen Angus Ranch Inc.
51-7117		0.7	Ground	Lynn E. and Joanne D. Jones
51-2305	0.053	1.34	Ground	Alan A. and Merlene S. McClaim Family Trust
51-2319	0.033	2.74	Ground	Marlene Boyack Llewellyn
51-2657	0.022	0.95	Ground	William Parmenter
51-2757	0.015	1.95	Ground	Earl Christopherson
51-2936	0.015	1.56	Ground	Richard A. and Audra O. Morley
51-3751	0.027	5.09	Ground	Vernon B.& Arlene Mills
51-3770	0.015	2.29	Ground	Todd and Linda C. Argyle
51-4246	0.022	1.4	Ground	J. W. Markham
51-4467		1.37	Ground	Lynn E. and Joanne D. Jones
51-4492	0.015	0.85	Ground	Gerald L. Hill
51-6341		1.5	Ground	Colton Curtis and Melissa Rogers
51-1133	0.023	2.58	Ground	Flonette Farms Inc.
51-1393	0.015	0.7	Ground	Edwin N. & Berta Lou Holt
51-1604		1.65	Ground	Clyde B. Argyle
51-3601	0.038	1.05	Ground	Steven Money
51-4001	0.013	0.45	Ground	Kim H. and Barbara L. Peterson
51-4539	0.015	1.39	Ground	Richard B. Roach
51-4633	0.015	3.02	Ground	Brent E. Money and Kris W. Money
51-4705	0.005	3	Ground	J. Lynn Partridge
51-7272		0.84	Ground	Clyde B. Argyle
51-8571		1	Ground	Jon B. White
51-8591		6.97	Ground	JBW Investment Co. LLC
51-1044	0.034	10.9	Ground	Allen Partridge et al

51-2306	0.045	2.8	Ground	Eldon A. & Sharlene S. Money
51-2631	0.045	1.63	Ground	Brent E. Money and Kris W. Money
51-4888	0.015	1.58	Ground	Kim H. and Barbara L. Peterson
51-4978	0.013	1	Ground	J. Lynn Partridge
51-4979	0.013	1	Ground	J. Lynn Partridge
51-5133	0.015	2.26	Ground	Allen Partridge
51-5201	0.015	1.73	Ground	Elaine Burnham
51-5579	0.011	2.57	Ground	Kathleen L. Roach Trust
51-6222	0.015	0.73	Ground	Jon B. White
a40405		1	Ground	Wayne and Paula Kay Kunze
51-2138	0.067	5.46	Ground	Jon C. and Carol L. Beck
51-2335	0.071	2.88	Ground	John A. Beck
51-2590	0.223	2.69	Ground	Paul Joseph and Barbara Anderson Family Trust
51-1055	0.06	43.44	Ground	Paul Joseph and Barbara Anderson Family Trust
51-1698	0.067	2.8	Ground	Jon C. Beck
51-1788	0.067	48.27	Ground	Paul Joseph and Barbara Anderson Family Trust
51-6197	0.015	2.99	Ground	Bill L. Beck
51-2086	0.056	3.16	Ground	Stephen D. Markham
51-2114	0.134	7.67	Ground	James D. Finch
51-2122	0.134	3.27	Ground	Alan Fay and Cletona Hone
51-2142	0.045	1.65	Ground	Mark Stack
51-2187	0.089	6.93	Ground	John W. & Pearl Ann Seamons
51-2217	0.045	3.32	Ground	Ladell O. Glazier
51-2218	0.147	2.71	Ground	Hyrum Leysion
51-2285	0.056	4.5	Ground	Utah Idaho Sugar Company
51-2286	0.171	123.58	Ground	Lew & Evelyn Christensen
51-2287	0.08	57.67	Ground	Lew & Evelyn Christensen
51-2829	0.045	0.45	Ground	Kenneth Hill
51-7409		1	Ground	Gregory F. and Janet Stodtmeister
51-1059	0.778	562.26	Ground	Lew & Evelyn Christensen
51-1211	0.778	562.26	Ground	Lew & Evelyn Christensen
51-1533	0.033	2.84	Ground	Richard S. Ericksen Family Revocable Trust
51-1599	0.054	12.03	Ground	Carl Marcusen
51-3677	0.025	1.29	Ground	William B. & Kathryn I. Huff
51-6375	0.015	4.25	Ground	Glen R. and Genevieve E. Larsen
51-8314		1.59	Ground	Richard S. Ericksen Family Revocable Trust
51-1034	0.009	0.45	Ground	State of Utah Department of Transportation
51-2953	0.03	3.18	Ground	Jeffery J. & Beverly Memmott
51-3625	0.016	0.93	Ground	Jesse Memmott
51-6642		1.59	Ground	Jeff O. Thomas
51-1159	0.015	1.73	Ground	Hugh C. Blohm
51-1166	0.015	0.67	Ground	Rolla Hall
51-1167	0.015	0.78	Ground	Rolla Hall
51-1178	0.015	1.73	Ground	William H. & Celestia Grace Morris
51-1247	0.015	1.73	Ground	Vernon Keith McKell
51-1319	0.015	1.73	Ground	Leon J. & Linda Thomas
51-1321	0.015	1.73	Ground	Vernon Keith McKell
51-1346	0.056	14	Ground	Ivan E. Carlson
51-1568	0.111	1.63	Ground	Glenn and Linda B. Castleberry
51-2009	0.216	2.7	Ground	Douglas and Susan Barber
51-2023	0.078	3.8	Ground	Douglas and Susan Barber
51-4966	0.015	1.83	Ground	Blake Bills
51-5305	0.015	1.45	Ground	Merlyn J. Swenson
51-8626	0.007	0.94	Ground	Morris J. & Sharla Thomas
51-1090	0.015	1.73	Ground	Carol C. Berrett Family Revocable Trust
51-1101	0.024	2.44	Ground	Clare H. and Patricia Louis Davis
51-1118	0.015	0.45	Ground	Lewis W. and Beulah L. Jex
51-1315	0.015	1.73	Ground	John Carl Marcusen
51-1329	0.062	1.65	Ground	Hillman C. Snell
51-1359	0.015	0.9	Ground	James F. Proctor
51-1380	0.015	1.73	Ground	Allen D. & Leona Y. Warner
51-1387	0.111	10	Ground	Utah Poultry and Farmers Cooperative
51-1443	0.03	1.62	Ground	Brad and Debra Frehner
51-1453	2.25	1628.95	Ground	Fritzi Realty
51-1632	0.022	2.04	Ground	Clifford George and Calleen C. Argyle
51-1792	0.033	2.52	Ground	Alvin Marcusen
51-1811	0.009	2.58	Ground	Robert J. Bradford
51-1942	0.067	6.77	Ground	Ted Clifford & Jaqueline Voorhees
51-3614	0.045	3.04	Ground	Allen d. Warner

51-3667		5.58	Ground	Morf Farm LLC
51-2147	0.2	9.374	Ground	Bryan Van Tassell
51-2207	0.002	0.92	Ground	John S. Davis
51-2239	0.002	1.45	Ground	R. W. Creer
51-2279	0.011	0.45	Ground	Clare H. and Patricia Louis Davis
51-2347	0.011	0.79	Ground	Vern and Merlene Mecham
51-2460	0.004	1.23	Ground	Dora Bradford Hansen
51-2464	0.045	2.12	Ground	Roy Bradford
51-2723	0.056	3.1	Ground	J. T. Stickney
51-2762	0.11	20.59	Ground	Ruben M. Gardner
51-2898	0.096	41.01	Ground	Val Eugene and Betsy Ann Simmons
51-2934	0.022	2.98	Ground	John S. Davis
51-2935	0.045	2.4	Ground	John S. Davis
51-5001	0.013	2	Ground	G. Dean Ingram
51-5583	0.015	1.62	Ground	Gerald J. & Charlene L. Voran
51-6264	0.015	1.27	Ground	Duane Kirkham
51-6367		1.28	Ground	Val Eugene and Betsy Ann Simmons
51-8010		0.03	Ground	Keith H. and Kristine W. Pryor
53-1664		0.9	Ground	Beifuss Famiy LLC
53-1550	0.067	16.04	Ground	Keith H. and Kristine W. Pryor
51-2081	0.007	1.51	Ground	Linwood Ray Nielsen
51-2087	0.045	6.49	Ground	Betty Rae Larson
51-2109	0.045	1.56	Ground	Leland Milling Company
51-2145	0.223	10.47	Ground	Rex E. and Sherrie H. Larsen
51-2182	0.058	2.4	Ground	Wade Mindie Ned and Linda Fausett
51-2253	0.009	1.82	Ground	Alonzo Wilde
51-2280	0.022	0.17	Ground	Earl H. Davis
51-2303	0.014	2.13	Ground	Mark Stark
51-2330	0.089	3.15	Ground	Ryan A. Creer and Ruth D. Creer
51-2334	0.089	3.49	Ground	Bernard and Norma Cope
51-2336		0.45	Ground	John S. and Lauraine C. Robinson
51-2337	0.059	2.57	Ground	Vesta T. Conrad
51-2344	0.067	9.4	Ground	Lorin W. Creer Family Trust
51-2358	0.089	10.33	Ground	Hans L. Larsen
51-2468	0.034	1.45	Ground	David B. and Jennifer M. Isaac
51-2684	0.022	1.77	Ground	The Church of Jesus Christ of Latter Day Saints
51-2700	0.045	5.45	Ground	Barney Inc.
51-2725	0.067	28.95	Ground	Lorin W. Creer Family Trust
51-1070	0.009	1.14	Ground	Mark H. Stark
51-1099	0.007	0.45	Ground	Leroy Isaac
51-1141	0.015	1.73	Ground	Bonnie Kaye and Bruce L. Cass
51-1293	0.015	2.8	Ground	William C. Creer
51-1305	0.015	0.45	Ground	Russell D. and Lisa R. Olsen
51-1351	0.015	1.73	Ground	Jack L. Morrey
51-1394	0.015	1.73	Ground	Opal Atwood
51-1429	0.015	0.45	Ground	Lorin W. Creer
51-1440	0.015	1.59	Ground	Harold J. Thomas
51-1515	0.022	4.65	Ground	Catalyst Development LC
51-1540	0.012	0.53	Ground	Ronald S. Creer
51-1743	0.133	16.56	Ground	Robert Perry
51-1847	0.067	3.35	Ground	Frank E. & Pat A. Christianson
51-3645	0.013	1.65	Ground	Steven L. Baum
51-4004	0.03	1.06	Ground	Vesta Thomas Conrad Robertson
51-4176	0.015	1.56	Ground	John M. Tuckett
51-4262	0.015	1.06	Ground	Vesta Robertson
51-6075	0.015	1.59	Ground	James A. Eaton
51-2754	0.033	10.94	Ground	Four A Farms
51-2755	0.006	4.2	Ground	Ted W. Larson Family Trust
51-2756	0.004	2.8	Ground	Four A Farms
51-2862	0.029	1.09	Ground	William B. Huff
51-2960	0.089	4.33	Ground	David B. Larsen
51-3010	0.013	1.53	Ground	Kevin F. and Jenny R. Baadsgaard
51-4927	0.015	1.49	Ground	J. Randall Christensen
51-4949	0.015	1.37	Ground	Steven and Karen Shepherd
51-4959	0.015	1.53	Ground	The Davis Family Trust
51-5011	0.015	2.53	Ground	Thomas B. Woodhouse
51-5591	0.015	1.51	Ground	Clyde Bert Bradford
51-6157	0.015	2.01	Ground	Kevin L. Creer
51-6257	0.014	1.04	Ground	John S. Lewis

51-7585	0.1	2.1	Ground	Ted W. Larson Family Trust
51-7651		3	Ground	Catalyst Development LLC
51-7744		0.45	Ground	Wendell Hansen
51-7747		0.45	Ground	Seth Riddle
51-7748		0.45	Ground	Seth Riddle
51-2105	0.013	1.23	Ground	Wayne and Geraldine Pace
51-2123	0.089	2.29	Ground	Albert W. Thomas Living Revocable Trust
51-2137	0.089	3.18	Ground	Florence Stoker
51-2155	0.011	1.68	Ground	Nephi Swenson
51-2179	0.056	0.49	Ground	James Douglas and Alesia Walser Bischoff
51-2382	0.067	0.45	Ground	Steven and Beckynn Watson
51-2475	0.022	1.18	Ground	The Paul B. and Kathleen C. Hansen Family Trust
51-2586	0.056	3.85	Ground	Thomas Bona
51-2587	0.056	3.85	Ground	Gary Hugh Galt and Stephanie Galt
51-2588	0.089	6.22	Ground	Bert Timpson
51-2977	0.022	1.21	Ground	Paul Joseph and Barbara Anderson Family Trust
51-4783	0.015	1.69	Ground	Roger L. Jones
51-4965	0.015	0.98	Ground	Thomas R. and Sherri D. Shepherd
51-5560	0.005	2.81	Ground	Glen M. Baadsgaard
51-6452	0.015	2.01	Ground	Shirl Moore and Barbara Jean Larsen
51-6619		0.96	Ground	Waldo G. Swenson
51-8053		7.77	Ground	Paul Joseph and Barbara Anderson Family Trust
51-8247		0.5	Ground	Declaration of Sub-trust of the Valgardson Fam Tr.
51-1076	0.015	2.37	Ground	R & S Beck Trust
51-1195	0.015	1	Ground	Carl Elwood Conrad
51-1737	0.089	7.35	Ground	Thesalynn Peterson
51-1774		1.69	Ground	Jeffrey L. and Karla J. Peterson
51-1781	0.011	1.52	Ground	R & S Beck Trust
51-1812	0.022	3.42	Ground	Lorin W. Creer Family Trust
51-1905	0.004	1.26	Ground	Alan G. and Patricia Swenson
51-4591	0.015	1.51	Ground	William E. Betts
51-4647	0.015	1.56	Ground	Joanne Vincent
51-4687	0.015	2.22	Ground	David Davis
51-7848		4.88	Ground	Paul B. and Kathleen C. Hansen Family Trust
51-7849		1	Ground	Paul B. and Kathleen C. Hansen Family Trust
51-8248		0.5	Ground	Tad Weight and Joyce Weight
51-8249		1.29	Ground	Jeffrey L. and Karla J. Peterson
51-8250		1.19	Ground	Jeffrey L. and Karla J. Peterson
51-1048	0.02	2.94	Ground	Ralph Balzly
51-1049	0.011	2.19	Ground	David Larsen
51-2544	0.009	3.26	Ground	Elmer D. Nichols
51-6011	0.022	4.38	Ground	Zoe and Millard Ned Balzly
51-7682		0.45	Ground	Aaron J. Johnson
51-1124	0.015	10.84	Ground	Steven K. Davis Revocable Trust
51-1190	0.25	73.32	Ground	Steven K. Davis Revocable Trust
51-1289		2.8	Ground	Keith Alan Williams
51-1314	0.015	2.87	Ground	Purple Monkey Dishwasher LLC
51-1368	0.015	2.69	Ground	Bernell Hansen
51-1585		1.34	Ground	Keith Alan Williams
51-2057	0.011	2.13	Ground	Neils Anthon
51-2164	0.009	1.51	Ground	David E. Williams
51-2165	0.011	2.91	Ground	Hyrum Swenson
51-2166	0.134	22.94	Ground	Hyrum Swenson
51-2167	0.022	6.94	Ground	Hyrum Swenson
51-2168	0.067	14.94	Ground	Hyrum Swenson
51-2195	0.009	1.12	Ground	John W. Bell
51-2273	0.089	17.4	Ground	Evans Legacy LLC
51-2324	0.223	22.8	Ground	Keith Alan Williams
51-2325	0.134	10.94	Ground	Keith Alan Williams
51-2664	0.1	43.08	Ground	Keith Alan Williams
51-2667	0.2	42.39	Ground	Donald K. Mecham
51-2668	2	42.39	Ground	Donald K. Mecham
51-2926	0.022	4.2	Ground	Vera B. Willaims
51-3505	0.045	10	Ground	Jack Leftwich
51-3506	0.045	10.8	Ground	Jack Leftwich
51-3749	0.067	2.62	Ground	Willard A. and Maggie Crump
51-3758	0.067	0.84	Ground	George J. & Mary E. Milner
51-3759	0.067	0.34	Ground	George J. & Mary E. Milner
51-3760	0.067	1.26	Ground	George J. & Mary E. Milner

51-3761	0.067	0.84	Ground	George J. & Mary E. Milner
51-7233		3.25	Ground	David A. Cloward
51-7240		0.45	Ground	Brad D. and Natasha R. Ford
51-7458		0.45	Ground	Steven M. and Cheryl K. Leifson
51-7604		0.45	Ground	TA Wilson Trust
51-7724		0.98	Ground	Justin E. Jones and Amanda Jones
51-7727		0.9	Ground	Howard M. and Kathleen S. Bahr
51-7756		1	Ground	Garth and Ann Swenson Family Revocable Trust
51-8036		0.45	Ground	Chad D. Fenn
51-8179		0.9	Ground	Charles R. and Maureen H. Trotter
51-8208		0.9	Ground	Kirby B. and Milo A. Beckstrom
51-8209		0.9	Ground	Milo A. and Kirby B. Beckstrom
51-8210		0.45	Ground	Blair or Diane Beckstrom Family Trust
51-8221		0.45	Ground	Warren A. and Harriet Peterson
51-8282		2	Ground	Mike Holman
51-8375		1	Ground	Stewart Farms L.C.
51-1484		0.45	Ground	Ryan Lavery
53-1604		6.11	Ground	Shirl L. Ekins Family Trust
51-2124	0.011	1.71	Ground	Edward Williams
51-7668		1.92	Ground	Sam and Narene Ireland
51-6585		0.51	Ground	Kinesava Development Corporation
51-6596		1.73	Ground	Monte C. and Pamela Sue Bingham
51-1160	0.502	18.56	Ground	Lynn H. Child
51-1215	0.015	4.2	Ground	Ruben M. and Louise T. Gardner
51-1238	0.015	0.56	Ground	Board of Education of Nebo School District
51-1420	0.015	2.05	Ground	Lila Jane C. Smith Revocable Trust
51-1457	0.011	2.07	Ground	The Duane F. Hitchings 1995 Posterity Trust
51-1586	0.031	0.45	Ground	Utah Monument Company
51-1802	0.004	2	Ground	Maurice D. & Sharon K. Forbush
51-1803	0.022	1.57	Ground	Maurice D. & Sharon K. Forbush
51-1804	0.005	1.74	Ground	Maurice D. & Sharon K. Forbush
51-1805	0.047	8	Ground	Maurice D. & Sharon K. Forbush
51-1806	0.044	12	Ground	Maurice D. & Sharon K. Forbush
51-1807	0.002	0.28	Ground	Maurice D. & Sharon K. Forbush
51-1808	0.015	0.45	Ground	Maurice D. & Sharon K. Forbush
51-1827	0.029	14.65	Ground	Wash Creek Pipeline Company
51-1828	0.052	14.65	Ground	Wash Creek Pipeline Company
51-1829	0.028	14.65	Ground	Wash Creek Pipeline Company
51-6435	0.045	4.99	Ground	Ray D. Williams
51-2078	0.011	1.01	Ground	American Mutual Building and Loan Company
51-2596	0.013	1.23	Ground	M. T. Barney
51-2920	0.011	10.61	Ground	Q. I. & Viola L. Hansen
51-2921	0.011	10.61	Ground	Leatha J. Henricksen
51-2922	0.018	10.61	Ground	Leatha J. Henricksen
51-2923	0.091	11.06	Ground	Leatha J. Henricksen
51-3818	0.013	2	Ground	Kevin Mayberry
51-3819	0.013	1	Ground	Kevin Mayberry
51-8161		1.37	Ground	Duane F. Hutchings 1995 Posterity Trust
51-6800		2.71	Ground	Earl K. Jackson
51-8652	0.001	0.45	Ground	Richard D. Clifford and Julie A. Clifford
51-8655	0.018	4	Ground	Nebo Vista Trust
51-3508	0.015	2.23	Ground	Ann A. Tuttle
51-3764	0.053	23.45	Ground	Nathan B. Hales
51-2686	0.022	2.59	Ground	Dan D. and Michelle Williams
51-2909	0.022	5.66	Ground	Harold H. Hanson
51-2937	0.007	3.43	Ground	Board of Education of Nebo School District
51-2983	0.015	2.34	Ground	Robert Grotegut
51-2181	0.004	0.45	Ground	Mary C. Christenson
51-2186	0.011	0.75	Ground	Wellington G. Jex
51-2194	0.003	0.73	Ground	Keith H. Christianson
51-2632	0.045	0.69	Ground	William R. Fillmore
51-2772	0.011	0.9	Ground	Pratt Hill
51-2809	0.022	2.45	Ground	Sterling R. and Wayne H. Swenson
51-2848	0.045	2.07	Ground	Dean Betts
51-2864	0.015	1.82	Ground	Norman G. Olsen
51-2906	0.004	0.79	Ground	Harold H. Hanson
51-1411	0.015	1.73	Ground	Merlin R. Johnson
51-1732	0.016	1.45	Ground	Nicholas Smith
51-1930	0.007	0.7	Ground	Kelly R. Evans

51-3764	0.033	2.67	Ground	Ernest Vern Walker
51-3867		175	Ground	J. David and Julie A. Nelson
51-4515	0.015	1.79	Ground	Russell W. and Caroline F. Boyack
51-4604	0.015	1.53	Ground	David and Loretta Armstrong
51-6120	0.015	1.59	Ground	Jeffrey Kim and Janet L. Pierce
51-6329	0.015	1.73	Ground	W. Kelly and Norma Johnson
51-6529	0.015	0.45	Ground	M. Vee Dixon
51-6552	0.008	0.45	Ground	Shad Walter and Mary Ellen Messick
51-6729		1	Ground	M. Vee Dixon
15-2716	0.045	6.07	Ground	Michael G. and Vina Lee Foster
51-4753	0.015	1.79	Ground	Joseph Robert Creer
51-4987	0.015	1.45	Ground	David A. Grotegut
51-5012	0.015	2.72	Ground	J. David Nelson
51-5271	0.015	1.98	Ground	Zera Staheli
51-6315	0.015	1.59	Ground	Kenneth A. and Catherine R. Black
51-6317	0.015	1.45	Ground	Scott Pearson
51-6319	0.015	2.85	Ground	Douglas A. Nielson
51-6363	0.015	1.51	Ground	Robert S. Goodwin
51-6364	0.015	1.56	Ground	George W. Rawlings
51-6527	0.015	1.62	Ground	Blaine and Linda Fewkes
51-6587		1.73	Ground	Sunrise Ridge at Springville LLC
51-7970		0.45	Ground	Sunrise Ridge at Springville LLC
51-7971		0.45	Ground	Sunrise Ridge at Springville LLC
51-7972		0.45	Ground	Sunrise Ridge at Springville LLC
51-7973		0.45	Ground	Sunrise Ridge at Springville LLC
51-3490		3.09	Ground	David C. Helm
51-3822	0.006	1.48	Ground	James E. and Gertrude Sumsion
51-4034	0.004	1.29	Ground	Edna J. Lindsay
51-4527	0.015	1.62	Ground	Ross E. and Janene W. Baadsgaard
51-4528	0.015	1.53	Ground	Ginnie L. Snyder
51-3602	0.025	10.71	Ground	Clifton Huff
51-6547		1.59	Ground	Martin and Melanee Dulfon
51-4787	0.015	1.51	Ground	Ronald & Rebecca Thurgood
51-4964	0.015	1.34	Ground	BB&T Holdings, LLC
51-5206	0.015	1	Ground	Lamar and Melanie Farnsworth
51-1242	0.015	1.73	Ground	Ralph L. Wyman
51-1379	0.015	1.73	Ground	Harold Hurst
51-1536	0.835	13.81	Ground	K. O. Burt
51-1603	1	30	Ground	N. Grandon Allred
51-4040	0.135	18	Ground	Kent Stephens
51-4592	0.015	1.39	Ground	Lori K. Monk
51-6081	0.015	1.59	Ground	John C. Burt
51-8027		1	Ground	Stewart Farms L.C.
51-8181		1.11	Ground	McCollins, LLC
51-8182		1.5	Ground	C. B. and M. A. Anderson Trust
51-8183		1.5	Ground	McCollins, LLC
51-8185		1.5	Ground	Barry Harman Trust
51-8186		1.5	Ground	McCollins, LLC
51-8197		5.28	Ground	McCollins, LLC
51-8277		1.5	Ground	Aaron Johnson
51-8278		1.5	Ground	David C. Helm
51-8471		0.72	Ground	McCollins, LLC
51-8473		0.34	Ground	C. B. and M. A. Anderson Trust
51-8535		2.26	Ground	Dinotopia, LLC
54-1247		0.55	Ground	IKBA LLC
55-8676		4	Ground	Central Bank
55-9071		1	Ground	Richard P. Coombs
51-2873	0.015	0.51	Ground	LAMC L.L.C.
51-2967	0.03	2.96	Ground	LAMC L.L.C.
51-2969	0.015	1.8	Ground	Tracy B. Carter
51-4729	0.015	2.45	Ground	LAMC L.L.C.
51-4917	0.015	1.51	Ground	LAMC L.L.C.
51-7325		1	Ground	Stewart Farms L.C.
51-7737		1.25	Ground	Stewart Farms L.C.
54-1004		1	Ground	James O. and Shauna M. Burton
55-9248		1	Ground	James O. and Shauna M. Burton
55-9312		1	Ground	John F. and Janet L. Spratt
55-9313		1	Ground	K. Erik and Wndee L. Hansen
55-9314		1	Ground	Buria Koren Ashknazi

55-9315		1	Ground	James A. and Judy A. Jones
55-9406		1	Ground	Keith and Karen Campbell
55-9603		1	Ground	David Hagen
51-1230	0.015	0.98	Ground	Lewis P. Holt
51-1240		1.73	Ground	Blair R. and Merlene G. Hamilton
51-1264	0.015	0.22	Ground	William Johnson
51-1272	0.015	0.56	Ground	Heber Johnson
51-1589	0.015	1.97	Ground	James Ray Lewis
51-4805	0.015	2.12	Ground	Patricia E. Frandsen Trust
51-4808	0.015	1.84	Ground	Steven P. Johnson
51-5551	0.015	1.81	Ground	Mark B. Dallin
51-5846	0.015	1.53	Ground	Dale Houghton
51-1270	0.011	1.21	Ground	Henry J. McKell
51-2992	0.013	1.73	Ground	Charles and Pamela Tilton
51-3002	0.013	1.73	Ground	David and Susanne Beardall
51-3647	0.013	4	Ground	Luella J. Farnworth
51-3653	0.006	1.73	Ground	Darwin L. & Beverly M. Thomas
51-4035	0.013	1.33	Ground	Phillip R. and Andrea P. Allen
51-4168	0.015	1.45	Ground	Patricia E. Frandsen Trust
51-4525	0.015	1.81	Ground	Allen D. Evans
51-4571	0.015	1.51	Ground	Jesse L. & Thusnelda Walker
51-4689	0.015	1.9	Ground	Jesse L. Walker
51-6232	0.015	1.58	Ground	Michael B. Gardner
51-6633		1.51	Ground	Algernon Dee and Shirley A. Baxter
51-2236	0.002	0.62	Ground	William W. Lamph
51-2377	0.011	0.84	Ground	Spanish Fork Co-Operative Institution
51-2603	0.004	1.5	Ground	Milo M. Kell
51-2773	0.015	2.04	Ground	James B. Sorensen
51-2814	0.045	8.65	Ground	Walter J. and Teresa L. Carroll
51-2927	0.134	14.24	Ground	Egbert Haderle Hog Farm
51-2929	0.015	0.51	Ground	Ray D. Warner
51-2987	0.5	11.28	Ground	The Byron and Melva Geslison
51-3019	0.013	1.73	Ground	Ray B. and Carol W. Bennion
51-5325	1.114	67.02	Ground	Dean A. Stone
51-6270	0.015	1.73	Ground	David G. & Christine S. Ellsworth
51-6467	0.015	1.56	Ground	Joaine Gonzales
51-6549		1.73	Ground	Lynette Bird
51-6604		3	Ground	Lynn R. Swenson
51-6649		1.51	Ground	Lee M. Shepherd
51-6650		1.51	Ground	Brad J. Jessen and Jennifer L. Jessen
51-1154	0.02	1.73	Ground	Nancy Alexander
51-1399	0.015	1.73	Ground	Vee F. and Vicki Hanks
51-1425	0.015	2.51	Ground	Neil F. and Patricia Sorensen
51-1742	0.008	0.45	Ground	Gilbert H. and Helen N. Olson
51-2060	0.022	0.08	Ground	Gilbert H. and Helen N. Olson
51-4544	0.016	1.16	Ground	Ray D. Warner
51-4563	0.015	2.32	Ground	Wilbur Stephenson
51-8219		4.29	Ground	Melanie L. Jex and Pamela J. Yamamoto
51-8220		2.81	Ground	Hales Family Trust
51-6651		1.35	Ground	Ted Huntington
51-6911		14.73	Ground	Lynn W. Leifson
51-2356	1.5	280	Ground	Bird Nest
51-2742	0.015	4.88	Ground	Varian Dee and Lucille P. Bartholomew
51-2787	0.045	2.62	Ground	Herbert and M. Verdell Hendricks
51-4065	0.146	1.76	Ground	Harold Dean Cloward
51-4080	0.048	5.24	Ground	Gary L. and Joan C. Johnson
51-4248	0.015	2.15	Ground	Carole B. Gardner
51-4653	0.014	1.45	Ground	Jennifer Paige
51-4662		0.88	Ground	Viola L. Thatcher
51-6089	0.015	1.62	Ground	Kent & Sharlene Cornaby
51-6106	0.015	1.29	Ground	Rene U. and Maristela C. Arce
51-6110	0.015	1.9	Ground	Barth L. Smith
51-6119	0.015	1.62	Ground	John F. and Susie B. Seggar
51-6159		0.44	Ground	Vernal M. Pulley Family Trust
51-6519	0.015	1.45	Ground	Paul Abraham
51-6678		0.45	Ground	Western Community Bank
51-1152	0.015	0.45	Ground	Dean Losee
51-1327	0.043	63.08	Ground	Garland A. Swenson
51-1375		0.56	Ground	W. Max Brotherson

51-1466		0.042	28.5	Ground	W. Max Brotherson
51-1903			4.82	Ground	Paul Albert Prior Family Revocable Trust
51-2045		0.076	20.56	Ground	Claude E. & Virginia R. Lewis
51-2058		1.448	1.01	Ground	F. E. Keyle
51-5178		0.015	1.51	Ground	C. Kendall & Sandra L. Baker
51-5186		0.015	1.61	Ground	Varian Dee and Lucille P. Bartholomew
51-5363		0.015	1.7	Ground	Heber Alldredge
51-5582		0.015	0.62	Ground	Orvid E. Cooper
51-7653			0.25	Ground	Bar-K development L.C.
51-7656			1.52	Ground	Prior Land L.L.C.
51-7657			0.7	Ground	George Andrew Prior
51-7667			1.73	Ground	Shirley A. Anderson
51-6679			0.45	Ground	Western Community Bank
51-1050		0.009	5.47	Ground	Reed Vincent
51-1255		0.015	3.11	Ground	Jesse C. Holt
51-1267		0.015	1.73	Ground	Mildred & Hial E. Thomas
51-1452		0.027	6.24	Ground	Willis Vincent
51-1572		0.06	21.98	Ground	Reed Vincent
51-1587		0.022	8.88	Ground	Fred Perry Vincent
51-3197		0.015	3.2	Ground	Bushnell Finance and Construction
51-3498		0.056	9.58	Ground	Bradford Acres Water Association
51-3622			1.45	Ground	Ray A. Swenson
51-6301		0.015	1.73	Ground	Lanny T. and Sherry J. Norris
51-6464		0.015	1.55	Ground	Bradford Acres Water Association
51-6487		0.015	1.71	Ground	Bradford Acres Water Association
51-6522		0.015	1.83	Ground	Bradford Acres Water Association
51-6543		0.015	1.57	Ground	Bradford Acres Water Association
51-7046			1.75	Ground	Dane e. and Brenda Anderson
51-2190		0.018	0.69	Ground	Wellington Wood
51-2373		0.004	0.73	Ground	William A. Hinze
51-5427		0.015	1.45	Ground	R Brant Monson and Robin S. Monson
51-5559		0.015	1.6	Ground	Lavar Taylor
51-7865			4.2	Ground	Stacey S. Roberts
51-5177		0.051	1.79	Ground	Ivan E. and Louella B. Hall
51-5584		0.022	1.19	Ground	Sundance Development Corporation
51-5585		0.015	2.01	Ground	Sundance Development Corporation
51-1419		0.015	1.59	Ground	Lela Louise Heslington
51-4479		0.01	0.88	Ground	Nancy Rose Jensen
51-4484		0.015	1.95	Ground	Lynn Leifson
51-4637		0.015	1.73	Ground	L. Lamar Adams
Private Spanish Fork Subarea Ground					
Water Rights		Subtotal	5,576	ac-ft	
51-1200	a26429				Spanish Fork City
51-1250	a26429				Spanish Fork City
51-1495	a26429				Spanish Fork City
51-1552	a26429				Spanish Fork City
51-1559	a26429				Spanish Fork City
51-1560	a26429				Spanish Fork City
51-1561	a26429		10,468		Spanish Fork City
51-1563	a26429				Spanish Fork City
51-1739	a26429				Spanish Fork City
51-1751	a26429				Spanish Fork City
51-2016	a26429				Spanish Fork City
51-2328	a26429				Spanish Fork City
51-3483	a26429				Spanish Fork City
51-1395			1.91		Spanish Fork City
51-1750			299		Spanish Fork City
51-6300	a24940				Spanish Fork City
51-6299	a24940		2,696		Spanish Fork City
51-7331	a23773		44.46		Spanish Fork City
51-7332			60.50		Spanish Fork City
51-7412	a24339		4.84		Spanish Fork City
51-7461			29.04		Spanish Fork City
51-7517	a24583		3.60		Spanish Fork City
Municipal Spanish Fork Subarea					
Ground Water Rights		Subtotal	13,607	ac-ft	

Irrigation Company Spanish Fork						Spanish Fork South Irrigation Company, Spanish Fork Southeast Irrigation Class B Shares (well), Spanish Fork West Field Irrigation Company, Strawberry High Line Canal Company, Wash Creek Irrigation Company
Subarea Ground Water Rights & Shares	Subtotal	1,417	ac-ft	Ground		
Total Spanish Fork Subarea Ground Water Rights		20,600	ac-ft			

Surface Water Rights						
Water Right Number	Change #	CFS	ACFT			Name
51-1037		2.23	819	WC shares	Surface	Wash Creek Irrigation Company
51-7246			33		Surface	Mesquite Presidio L.L.C.
51-8134			9		Surface	Coray Hone
51-8135			9		Surface	Kenneth H. and Alyce M. Armstrong
51-2913		4	899.44	NN shares	Surface	New Northeast Spanish Fork Irrigation Company
51-2774		0.1	15.38		Surface	Waldon Standly Vincent
51-2775		0.125	14.07		Surface	Blaine R. and Betsy M. Thompson
51-3050		1	1.01		Surface	Lynn W. & Diane Leifson
51-1333		0.015	10.84		Surface	W. Max Brotherson
51-7610			145		Surface	Fritzi Realty
51-6092		0.015	7.4		Surface	Linda Fay Smith
51-6803			1.84		Surface	Prior Land L.L.C.
51-1723		0.007	1.12		Surface	Clay T. Beesley
Private Spanish Fork Subarea Surface Water Rights		Subtotal	1,966	ac-ft		
Private Spanish Fork Subarea Surface Water Rights without local irrigation company shares		Subtotal	248	ac-ft		

51-1562		0.011	7.96		Surface	Spanish Fork City
51-5523		4.2	345		Surface	Spanish Fork City
51-6221		0	0		Surface	Spanish Fork City
51-6298		4.50	3,258		Surface	Spanish Fork City
51-6497	E72		1,680		Surface	Spanish Fork City
51-6508	E1661		25.7		Surface	Spanish Fork City
51-6944		4.95	3,584		Surface	Spanish Fork City
51-7805	a27887		355		Surface	Spanish Fork City
51-8514	a39076		446	WF shares	Surface	Spanish Fork City
51-8516	a39212		1,290	EB shares	Surface	Spanish Fork City
51-8562	a39700		222.464	SE shares	Surface	Spanish Fork City
51-8668	a41379		101.781	WF shares	Surface	Spanish Fork City
51-8669	a41380		27.0	WC shares	Surface	Spanish Fork City
51-8603	a40998		77.939	South share	Surface	Spanish Fork City
51-8686	a41567		266.24	EB shares	Surface	Spanish Fork City
51-776	a41907		0.440		Surface	Spanish Fork City
51-789	a41907		0.440		Surface	Spanish Fork City
51-2537	a41907		57.290		Surface	Spanish Fork City
51-3475	a41907		34.840		Surface	Spanish Fork City
51-3476	a41907		104.370		Surface	Spanish Fork City
51-6353	a41907		2.520		Surface	Spanish Fork City
51-3799	a41907		1.810		Surface	Spanish Fork City
51-3802	a41907		1.810		Surface	Spanish Fork City
51-3805	a41907		1.810		Surface	Spanish Fork City
51-8684	a41907		1.000		Surface	Spanish Fork City
51-36			0.840		Surface	Spanish Fork City
51-220			142.600		Surface	Spanish Fork City
51-259			0.450		Surface	Spanish Fork City
51-263			28.000		Surface	Spanish Fork City
51-281			164.000		Surface	Spanish Fork City
51-282			0.000		Surface	Spanish Fork City
51-299			0.840		Surface	Spanish Fork City
51-300			0.840		Surface	Spanish Fork City
51-302			1.130		Surface	Spanish Fork City
51-303			2.100		Surface	Spanish Fork City

51-539		0.840		Surface	Spanish Fork City
51-540		0.310		Surface	Spanish Fork City
51-541		0.310		Surface	Spanish Fork City
51-542		0.310		Surface	Spanish Fork City
51-543		0.310		Surface	Spanish Fork City
51-544		0.310		Surface	Spanish Fork City
51-545		0.310		Surface	Spanish Fork City
51-565		0.840		Surface	Spanish Fork City
51-578		0.310		Surface	Spanish Fork City
51-627		0.840		Surface	Spanish Fork City
51-630		0.840		Surface	Spanish Fork City
51-646		0.560		Surface	Spanish Fork City
51-666		0.560		Surface	Spanish Fork City
51-679		0.310		Surface	Spanish Fork City
51-3429		0.560		Surface	Spanish Fork City
51-3964		172.000		Surface	Spanish Fork City
51-4219		0.310		Surface	Spanish Fork City
51-8599		1.940		Surface	Spanish Fork City
51-8604		0.250		Surface	Spanish Fork City
51-8605		0.810		Surface	Spanish Fork City
51-8606		0.240		Surface	Spanish Fork City
51-8607		3.120		Surface	Spanish Fork City
51-8610		6.240		Surface	Spanish Fork City
51-8613		0.290		Surface	Spanish Fork City
<hr/>					
Municipal Spanish Fork Subarea Surface Water Rights	Subtotal	12,427	ac-ft		
<hr/>					
Surface Water Rights without rights based on local irrigation company shares.	Subtotal	9,995	ac-ft		
<hr/>					
Irrigation Company Spanish Fork Subarea Surface Water Rights & Shares		15,362	ac-ft	Surface	East Bench Canal Company, New Northeast Spanish Fork Irrigation Company, Spanish Fork South Irrigation Company, Spanish Fork Southeast Irrigation Class A Shares (river), Spanish Fork West Field Irrigation Company, Strawberry High Line Canal Company, Wash Creek Irrigation Company
<hr/>					
Total Spanish Fork Subarea Surface Water Rights		25,605	ac-ft		
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TOTAL SPANISH FORK SUBAREA WATER RIGHTS		46,205	ac-ft		

Wetlands MNWA Subarea Water Rights

Ground Water Rights					
Water Right					
Number	Change #	CFS	ACFT	Type	Name
53-836		0.033	16.76	Ground	Rodney Steele
53-108		0.015	0.56	Ground	Jay Lewis Woodard Family Trust
53-314		0.002	1.21	Ground	Rodney Steele
53-319		0.022	1.4	Ground	Jay Lewis Woodard Family Trust
53-829		0.015	0.73	Ground	Dan Ray & Ray & Delreece Kay
53-99		0.015	1.4	Ground	Jay Lewis Woodard Family Trust
53-60		0.015	10.84	Ground	Ray Kay
53-104		0.015	0.73	Ground	Jay Lewis Woodard Family Trust
53-62		0.015	5.66	Ground	Ray Kay
53-814		0.022	1.4	Ground	Jay L. Woodward
53-956		0.004	2.24	Ground	Jeffrey Mac and Paige Larae Steele
53-982		0.004	1.12	Ground	Randal and Rodney Steele
53-983		0.004	0.7	Ground	Douglas A. Nielson
53-984		0.004	1.12	Ground	Douglas A. Nielson
53-813		0.003	0.62	Ground	Samuel James and Helen L. White
53-820		0.03	5.27	Ground	Dan Ray & Ray & Delreece Kay
53-821		0.011	0.87	Ground	Dan Ray & Ray & Delreece Kay
53-822		0.009	0.87	Ground	Dan Ray & Ray & Delreece Kay
53-823		0.027	0.87	Ground	Dan Ray & Ray & Delreece Kay
53-824		0.011	0.87	Ground	Dan Ray & Ray & Delreece Kay
53-963		0.005	3.61	Ground	Gary Elton
53-1348			1.27	Ground	Wayne Robertson
53-1351			1.73	Ground	Emily Riding and Jason Riding
53-1352			2.01	Ground	R. Craig and Lydia L. Mills
53-315			4.72	Ground	Rodney Steele
51-5300		0.068	21.96	Ground	Utah County
51-5494		0.045	2.8	Ground	John D. Youd
51-6046		0.015	2.36	Ground	South Shore Farms
51-2338		0.056	2.17	Ground	Dan R. Williams
51-5686			0.34	Ground	Karen H. Thomas
51-1077		0.015	2.83	Ground	Barnew W. and Linda S. Cornaby
51-2267		0.011	0.56	Ground	Marilyn Sorenson
51-2837		0.001	0.7	Ground	Glade A. and Marie Y. Carr
51-5017		0.015	1.12	Ground	Dennis G. Carr
51-5131		0.015	1.18	Ground	Semisi F. Makai et al
51-5496		0.001	0.73	Ground	John D. Youd
51-6209		0.015	1.73	Ground	Bill G. Majers
51-6254		0.015	1.73	Ground	Jack Kirt and Karla Daley
51-6256			1.73	Ground	Darren w. and Anne C. Brown
51-6886			1.65	Ground	Allen and Gunchariga Carr
51-6953			1.51	Ground	Blaine Hone
51-6953			1.3	Ground	Blaine L. and Heather Hone
51-6954			1.5	Ground	Paul and Nicole Sparks
51-1217		0.015	1.4	Ground	Sorensen Angus Ranch, Inc.
51-3492		0.009	1.12	Ground	Sorensen Angus Ranch, Inc.
51-3838		0.022	0.56	Ground	John D. and Janet Youd
51-7211			1.45	Ground	Jason S. and Natalie Rindlisbacher
51-758			0.5	Ground	Bradley K. Hall
51-3893		0.018	12	Ground	Frank A. Beckstrom
51-7734		0.007	0.84	Ground	Marie Newitt
51-7735		0.001	0.84	Ground	Clara B. Simmons
51-2734			8.5	Ground	Robert Llewellyn
51-2735			8.5	Ground	Robert Llewellyn
51-5497			0.73	Ground	Sorensen Angus Ranch, Inc.
51-8405			6.35	Ground	Helina Carter
51-1918		0.007	0.73	Ground	M D & L L.C.
51-6620			3	Ground	Kevin M. Beckstrom and Scott Beckstrom
51-6721			2.02	Ground	Kevin M. Beckstrom and Scott Beckstrom
51-7892			0.78	Ground	M D & L L.C.
51-7893			0.78	Ground	M D & L L.C.
51-7894			0.78	Ground	M D & L L.C.
51-7895			0.78	Ground	M D & L L.C.
51-2648		0.009	0.98	Ground	Kevin M. Beckstrom and Scott Beckstrom
51-5367		0.015	3	Ground	Rigtrup Hatchery

51-7064		2.35	Ground	Kevin M. Beckstrom and Scott Beckstrom
51-119		7.11	Ground	Ronald S. and Geraldine B. Jensen
51-2990	0.056	4.25	Ground	Kathleen W. and D Blair Olsen
51-8162		3	Ground	Regina J. and Glen G. Tanner
51-1116		0.7	Ground	Walter W. Ludlow
51-6669		2.01	Ground	Michael and Romona Woolsey
51-1730	0.011	1.54	Ground	Joseph C. and Florence Bellows
51-7883	0.015	3.5	Ground	James S. and Susan S. Evans
51-6187		0.89	Ground	Robert L. & Terri C. Hudson
51-2096	0.04	2.61	Ground	Thomas Craig Sumsion
51-2127	0.007	1.93	Ground	Grant Jensen
51-2842	0.018	1.2	Ground	Michael D. Miner
51-4879	0.007	1.51	Ground	Spring Acres Investments, LLC
51-5477	0.007	1.61	Ground	Thomas Craig Sumsion
51-1149	0.015	0.49	Ground	Reed Christmas
51-1516	0.1	42.17	Ground	Dan R. Williams
51-3044	0.011	0.7	Ground	Hal Johnson
51-1798	0.011	1.09	Ground	Dale Barney Cornaby and Cheri F. Cornaby
51-5634	0.033	5.63	Ground	Shirl and Joyce Simmons Family Trust
Private Wetlands Subarea				
Ground Water Rights	Subtotal	256	ac-ft	
Irrigation Company Wetlands				
Subarea Ground Water Rights & Shares	Subtotal	316	ac-ft	Ground
				Lake Shore Irrigation Company, Spanish Fork South Irrigation Company, Strawberry High Line Canal Company
Total Wetlands Subarea Ground Water Rights		572	ac-ft	

Surface Water Rights

Water Right Number	Change #	CFS	ACFT		Name		
51-5785		30	524.35	Surface	Bud Shepherd and Sons Poultry Farms, Inc.		
51-8628			1.5	Surface	Tyson N. and Whitney L. Shepherd		
51-8191			1.49	Surface	Leighton J. and Angie F. Shepherd		
51-8330			3	Surface	Ted S. Ahlin		
51-8398			1.51	Surface	Ryan Shepherd		
51-8523			1.6	Surface	David and Haley Hurst		
51-8524			4.2	Surface	Cooper Bringham		
51-8529			1.5	Surface	Shooters Soccer Club		
51-8537			1.5	Surface	Shepherd Poultry Farms, LLC		
51-8538			1.5	Surface	Shepherd Poultry Farms, LLC		
51-8539			1.5	Surface	Shepherd Poultry Farms, LLC		
51-8540			1.5	Surface	Shepherd Poultry Farms, LLC		
51-4548	0.5		122.22	Surface	George M. Olson		
51-6681			6	Surface	Bonneville Lake Bank		
51-7229			5	Surface	Spring Lake Water Works Company		
51-4641	0.134		1.12	Surface	Andrea Allen		
51-5549	15		632.2	Surface	Raynold W. Jensen		
51-6024	4		503.6	Surface	Rhea J. Andersen Living Trust		
53-943	0.5		8.4	Surface	Dan Ray & Del Reece Kay		
53-944	0.5		1.4	Surface	Jay Lewi Woodard Family Trust		
53-409	0.033		1.09	Surface	Delreece Kay		
53-487	0.033		1.09	Surface	Dan Ray Kay		
53-989	0.115		49.89	Surface	John M. Thomas		
Private Wetlands Subarea					Subtotal	1,877	ac-ft
Irrigation Company Wetlands							
Subarea Surface Water Rights & Shares			4,174	ac-ft	Surface	Goshen Irrigation and Canal Company, Lake Shore Irrigation Company, Spanish Fork South Irrigation Company, Strawberry High Line Canal Company, Warm Springs Irrigation and Power Company	
Total Wetlands Surface Water Rights			6,051	ac-ft			

TOTAL WETLANDS SUBAREA WATER RIGHTS **6,624** **ac-ft**

Woodland Hills MNWA Subarea Water Rights

Ground Water Rights

Water Right		CFS	ACFT	Type	Name
Number	Change #				
51-1153		0.015	2.44	Ground	Bruce Boyd and Susan Hansen Hanks
51-2823		0.403	34.65	Ground	Bench Land Water Association Inc.
51-2961		0.315	17.1	Ground	Bench Land Water Association Inc.
51-6358			2.12	Ground	David T. and Naome D. Roberts
51-6359			2.6	Ground	David T. and Naome D. Roberts
51-6360			2.6	Ground	David T. and Naome D. Roberts
51-4992		0.015	1.81	Ground	Bench Land Water Association Inc.
51-7040			10.17	Ground	James V. Price
51-7129			1.45	Ground	Noel R. and Sandra K. Hiatt
51-2031		0.089	10.1	Ground	Kenneth R. and Eva H. Hall
51-2925		0.016	1.96	Ground	Little Loafer, LLC
51-3038		0.013	1.73	Ground	James C. and Lucille C. Evans Revocable Trust

Private Woodland Hills Subarea Surface

Water Rights	Subtotal	89	ac-ft
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51-1500	a19156		4.2	Ground	Woodland Hills City
51-2594	a21338		3.646	Ground	Woodland Hills City
51-2812	a19156		26.12	Ground	Woodland Hills City
51-2930	a19156		33.504	Ground	Woodland Hills City
51-6725	a18488		85	Ground	Woodland Hills City
51-6726	a18488a		85	Ground	Woodland Hills City
51-7204	a22429		16.2	Ground	Woodland Hills City
51-7317	a23485		101.64	Ground	Woodland Hills City
51-7394	a23045		7.39	Ground	Woodland Hills City
51-8131	a28496		3.6	Ground	Woodland Hills City
51-8267	a33378		2.7	Ground	Woodland Hills City
51-8431	a39361		194.096	Ground	Woodland Hills City
51-8433	a37756		0.9	Ground	Woodland Hills City
51-8475	a39216		102.2	Ground	Woodland Hills City
55-12579	a39203		11	Ground	Woodland Hills City
57-10436	a39530		24.2	Ground	Woodland Hills City
57-10461	a41364		31.46	Ground	Woodland Hills City

Municipal Woodland Hills Subarea

Surface Water Rights	Subtotal	733	ac-ft
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Irrigation Company Woodland Hills

Subarea Surface Water Rights & Shares		0	ac-ft	Ground
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Total Salem Subarea Surface Water Rights		822	ac-ft
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Surface Water Rights

Water Right		CFS	ACFT	Type	Name
Number	Change #				
51-6521		0.134	2.1	Surface	G. Elmer Hanks

Private Woodland Hills Subarea

Ground Water Rights	Subtotal	2.10	ac-ft
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Municipal Woodland Hills Subarea

Ground Water Rights	Subtotal	0.00	ac-ft
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Irrigation Company Woodland Hills

Subarea Ground Water Rights & Shares	Subtotal	0.00	ac-ft	Surface
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Total Woodland Hills Subarea Ground Water Rights		2	ac-ft
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TOTAL WOODLAND HILLS SUBAREA WATER RIGHTS		824	ac-ft
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APPENDIX J

STREAM FLOW DATA

Streamgage: 10150500 SPANISH FORK AT CASTILLA UTAH
Drainage Area: 652.00 Sq. Miles
Datum: 4870.00 Feet
Location: 453259.19 East, 4433414.85 North (NAD83 UTM Coordinates)
Gage Type: Streamflow
Current Status: Realtime
Gage Operator: United States Geological Survey

ACFT Monthly Summary of Mean daily discharge in ACFT

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
1919					25226	21665	24778	21310	14382	4623	4155	3826	119966
1920	5098	4820	6446	12918	57673	28610	29873	20229	18405	8144	6367	5915	204498
1921	5016	5215	13158	17405	50805	34637	31978	27183	18351	12996	7192	7468	231404
1922	5720	6752	15402	23012	69727	35760	34713	22572	19448	13321	5962	5722	258111
1923	5613	4812	8047	24220	54581	30444	34647	22052	20781	8630	6399	4336	224563
1924	4744	5345	5746	10213	31077	21820	26696	22623	15037	6097	4798	3913	158110
1925	4840	4433	5581	9741	20182	18069	20824	18476	9693				111840
1933	3608	3007	5014	6867	17468	31254	24032	15189	9475	4951	3237	3616	127718
1934	3253	3580	3705	6016	11096	7478	6228	5683	3554	2063	2580	2755	57991
1935	2890	3166	3610	8005	19494	24149	17244	12432	10304	3033	2943	2860	110130
1936	3023	3255	5855	27562	38608	23486	15437	11764	8822	6978	3699	3503	151993
1937	3620	4967	10405	19644	42839	23191	17796	16330	10310	6381	4326	4185	163993
1938	4126	4203	9445	16867	28808	30496	19146	15751	9023	7010	4040	4580	153495
1939	4264	3622	11651	14043	22427	15719	20537	14301	8537	4221	3495	3525	126341
1940	3759	4499	7367	12934	25103	24180	13293	11899	5617	5322	3852	3812	121636
1941	3876	4542	5341	7630	25065	20777	18454	13940	11812	5954	4429	4443	126264
1942	4191	3981	8237	24405	26995	25912	22413	15888	10905	6972	4901	4933	159733
1943	4731	6198	7418	13085	19650	17334	21084	15297	10969	6776	3880	3878	130298
1944	3461	4147	6056	11367	35002	22437	27164	18206	11635	6833	4746	4185	155240
1945	4173	5623	6063	8220	28443	21979	25809	11369	12119	7252	4739	4467	140255
1946	4554	5020	7611	22689	25190	27858	22078	14390	11548	6409	4806	4677	156829
1947	4070	4887	9784	13835	28814	12861	25513	18157	13569	7178	3898	3723	146289
1948	3560	4635	6351	11330	26388	23123	24367	16947	13696	5139	3866	3808	143211
1949	3963	4092	6990	16314	26666	27122	22463	20731	12238	7543	4306	3896	156323
1950	4520	5169	7113	17958	26483	29623	22034	22560	16060	4865	5066	5209	166661
1951	4128	5014	5802	13343	24601	26809	26208	18478	13859	5944	3999	3917	152100
1952	4590	4645	6575	62719	114526	36676	27818	20640	18587	15064	9640	8015	329496
1953	7999	6262	8102	11167	17558	29548	24916	18772	12843	6734	4709	4425	153035
1954	4602	4707	5381	10159	20176	23096	19769	19767	8249	5558	3513	3479	128456
1955	3176	3148	6482	8604	18926	25242	27578	18234	9947	4647	3467	4598	134049
1956	4713	3669	6240	10340	21231	25920	21495	20352	10842	4346	3116	3560	135824
1957	3437	5512	6583	9971	30149	28138	30069	21753	14339	7864	4354	4560	166729
1958	4506	5399	8019	16268	40953	28159	25200	22102	9602	6732	4465	4558	175964
1959	4637	4471	5141	5117	17300	24968	17825	14485	7761	4237	2676	2690	111308
1960	3055	3281	5702	8220	21814	27197	20390	16334	6696	3374	2830	2489	121382
1961	2789	2801	3558	3372	16856	19440	12496	8170	4873	2408	2539	2515	81816
1962	3057	7339	6010	23520	26317	20420	16994	17913	7968	4979	3622	3062	141199
1963	3269	4189	3939	5474	17772	12448	19728	15439	6918	4832	3172	3209	100389
1964	3031	2408	3261	7591	24327	14323	29373	18488	11381	4340	3130	3769	125421
1965	4399	4251	5937	15386	34274	26539	22606	17587	11127	5518	4257	4120	156000
1966	3991	4552	9013	10897	22653	26803	19226	19010	8465	5234	3279	3275	136397
1967	3894	3646	7517	7448	21743	21679	30551	25295	17054	4598	4082	3913	151420
1968	3848	4820	6361	10451	29786	29833	30906	17907	17183	7908	4915	4588	168506
1969	5897	4834	8878	40526	47532	26856	27049	26469	15995	7210	4122	4860	220227
1970	5343	5294	5881	7234	24700	23318	27084	26465	12928	6621	5149	4352	154370
1971	5207	5788	9092	18799	30216	25601	28074	24879	5802	5550	5292	5034	169333
1972	5020	5514	9812	10229	27644	23088	23853	18781	7932	4481	4491	4173	145018
1973	3961	3997	6214	16372	56454	26680	25329	21382	10084	6567	5693	5401	188132
1974	5302	4905	9564	15660	36853	27620	24214	26824	11435	7240	5470	4802	179889
1975	4885	4435	6442	7759	42196	43906	29907	25020	15051	8801	5734	5474	199611
1976	5258	5361	7045	10510	26027	28479	26204	23334	10891	5173	4126	3755	156163
1977	3759	3743	4080	5423	11449	25285	21350	19545	7434	4011	3055	3106	112239
1978	3134	2900	8684	17625	31662	27469	27527	21862	9118	5272	4598	4276	164126
1979	3987	4052	7146	17082	34996	34663	28453	22364	14461	6286	4366	4266	182122
1980	5581	7519	9156	26850	54405	34627	28126	24817	8858	8325	5137	5244	218646

1981	5084	4675	5595	7736	19476	24524	23899	24819	7906	5663	4235	4320	137931
1982	5056	5423	12811	31555	65804	32949	27729	25509	13728	8890	7740	7418	244612
1983	7119	6863	17411	20822	61976	94770	30403	21217	17298	40197	28554	12859	359488
1984	9511	9128	16022	50479	127700	53665	29720	20061	14892	12056	9949	8396	361579
1985	6823	5189	13736	42085	47224	38081	22945	32287	12674	9366	8422	7154	245986
1986	7049	14650	20551	45449	54819	34602	28231	26382	12587	8961	8245	7466	268992
1987	6811	6520	7920	10056	18419	28011	21675	21600	13557	5718	4907	4360	149554
1988	4249	4211	6042	6809	21997	28493	29345	23804	11984	5399	3953	5486	151771
1989	9201	8668	11587	18966	23611	28925	27769	20289	10939	5066	8904	9800	183725
1990	10173	8963	12448	7934	21558	19202	29014	24577	13057	3423	3830	7595	161776
1991	8108	8535	7755	6075	13446	25018	30464	26110	10568	3310	6175	8493	154058
1992	8698	8305	9749	17115	20333	27608	20089	21812	22931	3164	6413	9134	175349
1993	9828	9378	16241	23564	47982	25700	28917	27384	13386	4909	4641	4695	216625
1994	4895	5068	7240	6119	19859	31301	29096	20666	14592	4044	4058	4149	151087
1995	4312	5016	10963	13650	50382	42855	29040	29643	14985	6559	6024	5760	219189
1996	6097	6764	11367	22003	39051	28681	27080	26200	12684	5909	6415	6532	198781
1997	7718	6454	15894	26049	51614	27421	28514	25521	15896	7156	6692	6226	225156
1998	6664	6300	12385	23554	53268	30791	34719	32114	19144	9053	9251	8067	245310
1999	8225	7932	8868	11318	28171	29050	30732	28274	17940	6393	5076	4836	186815
2000	5080	5096	5280	10116	19117	27060	24865	20606	10038	3816	3911	3959	138944
2001	3957	3981	4566	5415	18317	28336	21023	23098	14686	5219	8477	8874	145948
2002	10629	9241	8959	7357	14612	23740	22191	19730	12073	5276	6944	7031	147784
2003	6781	6676	7886	8321	14095	22423	22395	20285	13212	5845	7079	7224	142223
2004	6690	6444	9455	12891	15297	24589	22911	19942	12020	7160	15201	15822	168422
2005	17296	15546	18119	16046	43807	24696	29843	27090	15796	7948	8565	8350	233103
2006	8204	7601	11092	32862	46088	28074	27521	23970	12750	9699	8521	7753	224134
2007	5927	7260	8769	9862	19539	25484	25295	19817	10550	6341	6180	6855	151878
2008	7123	6764	8650	12585	26093	26733	29425	29470	11915	7361	7190	7553	180861
2009	7632	7337	9255	18155	34625	17088	29564	28719	15658	8283	7593	6992	190899
2010	7176	6778	8551	10280	16453	20767	30002	24875	20313	7962	7761	8713	169630
2011	8725	7250	12510	25505	71197	48835	34447	29581	21596	9614	8836	8519	286616
2012	7851	7196	9241	9826	19263	28639	22625	24244	12359	6234	5994	6353	159826
2013	5939	6208	7595	7575	20331	28562	25997	27360	9941	6670	6399	5790	158366
2014	6296	6579	6738	7125	17169	27884	26844	19670	10191	5623	5601	6063	145783
2015	6139	5887	6409	9070	10128	20176	23792	19547	12188	3808	4284	4272	125700
2016	4713	4752	5135	5316	12536	24702	24278	20809	11105	3318	240		116904

Streamgage: 10147000 SUMMIT CREEK NR SANTAQUIN UTAH
 Drainage Area: 14.60 Sq. Miles
 Datum: 5900.00 Feet
 Location: 435604.56 East, 4419391.51 North (NAD83 UTM Coordinates)
 Gage Type: Streamflow
 Current Status: Inactive
 Gage Operator: United States Geological Survey

ACFT Monthly Summary of Mean daily discharge in ACFT

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
1910										554	464	421	1439
1911	437	384	456	610	1228	880	540	417	376	382	323	346	6380
1912	329	295	338	478	3454	4320	914	625	526	536	469	437	12721
1913	387	325	377	1204	3162	1460	733	542	762	736	614	577	10880
1914	382	348	593	1976	4719	2225	1119	871	608	696	546	477	14560
1915	426	309	374	1305	2005	1732	815	626	548	491	434	402	9466
1916	353	343	664	1678	3586	2497	849	623	527				11122
1954										307	283	249	840
1955	250	233	232	538	2376	1323	569	457	361	363	299	312	7313
1956	328	279	331	849	1942	969	413	365	357	364	273	285	6756
1957	277	260	357	690	3310	4558	1291	738	619	603	500	415	13619
1958	371	345	407	895	4610	2138	676	611	513	455	458	385	11863
1959	372	313	323	507	871	589	323	303	274	305	243	189	4611
1960	194	207	250	705	2035	981	426	344	308	305	253	232	6242
1961	225	192	201	338	839	381	222	214	254	252	226	200	3544
1962	175	256	390	1602	3116	1924	756	562	476	447	412	387	10504
1963	344	319	306	441	1539	862	437	331	291	283	276	252	5681
1964	223	193	207	382	2791	1811	728	515	403	406	360	373	8392
1965	350	324	355	835	2620	2356	765	580	514	443	370	358	9870
1966	328	332	440	1246	1956	663	440	409	365				6179

Streamgage: 10147500 PAYSON C AB DIVERSIONS, NR PAYSON, UTAH
 Drainage Area: 18.80 Sq. Miles
 Datum: 5670.00 Feet
 Location: 440749.42 East, 4424591.36 North (NAD83 UTM Coordinates)
 Gage Type: Streamflow
 Current Status: Inactive
 Gage Operator: United States Geological Survey

ACFT Monthly Summary of Mean daily discharge in ACFT

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
1947							694	544	415	389	323	323	2688
1948	308	315	369	1548	4566	1263	736	678	564	433	391	396	11570
1949	374	320	355	2029	2902	1152	654	591	505	378	301	308	9869
1950	321	271	337	1466	3168	1192	667	578	515	379	342	336	9571
1951	313	272	316	1057	1484	863	567	520	370	331	283	305	6679
1952	292	250	312	2084	9630	2083	1085	857	723	537	361	350	18564
1953	321	269	356	898	2840	1426	799	480	471	352	328	317	8857
1954	323	296	352	1397	1418	582	448	449	321	289	297	256	6430
1955	325	249	266	733	4009	1198	567	499	352	305	306	329	9137
1956	321	286	332	1357	1494	633	555	498	333	279	233	227	6549
1957	221	211	285	817	5756	2945	1002	664	490	453	391	371	13606
1958	345	325	388	986	4869	1101	694	679	463	397	387	367	11001
1959	343	289	358	659	810	465	491	375	310	284	256	246	4885
1960	237	248	325	1020	2099	745	515	510	261	267	283	253	6761
1961	243	205	246	441	768	408	403	246	186	222	196	204	3769
1962	206	201	236	2510	3548	984	633	508	403				9228

APPENDIX K

SUVMWA AND CUWCD AGREEMENTS



United States Department of the Interior

OFFICE OF THE SECRETARY

Program Director
CUP Completion Act Office
302 East 1860 South
Provo, Utah 84606-7317



IN REPLY REFER TO:

CA-1000
PRJ-28.00

MAR 15 2005

Mr. Dale Wills
President, South Utah Valley
Municipal Water Association
P.O. Box 412
Spanish Fork City, UT 84660

Subject: Fully Executed M&I Water Petition, Contract No. 04-WC-40-160, Dated March 15, 2005, between the South Utah Valley Municipal Water Association, the Central Utah Water Conservancy District, and the Department of the Interior - Utah Lake System, Section 202(a)(1) of the Central Utah Project Completion Act (CUPCA)

Dear Mr. Wills:

Please find enclosed a duplicate original of M&I Water Petition Contract No. 04-WC-40-160, dated March 15, 2005, for the Utah Lake System that has been fully executed. By copy of this letter, we are also transmitting to the Central Utah Water Conservancy District a duplicate original of the water petition contract.

On behalf of the Department of the Interior, I would like to express our appreciation to you and your staff for your cooperation and efforts which have resulted in the execution of this water petition contract that is associated with the Utah Lake System. If you have any questions regarding this matter or this contract, please contact me at 801-379-1103.

Sincerely,

Ronald Johnston
Program Director

Enclosure

cc: ✓ Mr. Don A. Christiansen
General Manager, Central Utah
Water Conservancy District
355 West University Parkway
Orem, UT 84058
(w/encl)

1.B.02.029.B0.618.
SUV/WA/DOE

**PETITION
OF SOUTH UTAH VALLEY MUNICIPAL WATER ASSOCIATION
TO THE CENTRAL UTAH WATER CONSERVANCY DISTRICT
FOR THE ALLOTMENT OF WATER FOR
MUNICIPAL AND INDUSTRIAL USE**

THIS PETITION ("Petition"), is made this 15th day of March, 2005, pursuant to Utah Code Annotated §17A-2-1414 and Federal Reclamation Law, Act of June 17, 1902, as amended and supplemented, among the CENTRAL UTAH WATER CONSERVANCY DISTRICT, a water conservancy district organized and existing under the laws of the State of Utah, with its principal place of business at Orem, Utah ("CUWCD"); the SOUTH UTAH VALLEY MUNICIPAL WATER ASSOCIATION, ("SUVMWA") an organization created under authority of The Interlocal Cooperation Act, Utah Code Ann. §11-13-1 *et. seq.*, comprised of several cities in south Utah County, all of which are political subdivisions of the State of Utah, with SUVMWA's principal place of business in Spanish Fork, Utah. The municipalities involved in SUVMWA are Springville, Mapleton, Spanish Fork, Salem, Woodland Hills, Elk Ridge, Payson, Santaquin, Genola and Goshen, (referred to as "Member Municipalities."), with each of the Member Municipalities signing this Petition as a confirming party; and, the UNITED STATES OF AMERICA, ("United States") acting through the Secretary of the Department of Interior ("Secretary") or the Secretary's duly authorized representative.

WITNESSETH:

WHEREAS, the United States of America, acting through the Bureau of Reclamation, has constructed many features of the Bonneville Unit ("Project"), as a part of the Central Utah Project (Initial Phase), a participating project of the Colorado River Storage Project; and

WHEREAS, the United States of America, acting through the Secretary, and CUWCD are constructing the remaining features of the Project for the purpose of supplying water for irrigation, municipal, domestic, industrial, and other purposes to CUWCD for use by its petitioners and contract holders; and

WHEREAS, the United States, acting through the Bureau of Reclamation, and CUWCD entered into Repayment Contract No. 14-06-400-4286, dated December 28, 1965, as supplemented and amended, and particularly the supplement of November 26, 1985 (collectively, the "1965 Repayment Contract"); and

WHEREAS, the United States and CUWCD have investigated, planned, and propose to construct the Utah Lake Drainage Basin Water Delivery System of the Bonneville Unit of the Central Utah Project ("ULS") for the storage, diversion, and distribution of waters of the Colorado River and the Bonneville Basin drainage areas for municipal and industrial ("M&I") and other Project purposes, and have complied with the National Environmental Policy Act of 1969 ("NEPA") in regards to same; and

WHEREAS, the United States desires to make available to CUWCD the remaining Project M&I water supply developed by the ULS of approximately 60,000 acre-feet, ("ULS Project Water"); and

WHEREAS, said ULS Project Water is available to CUWCD from the United States under Repayment Contract No. 04-WC-40-120 ("ULS Repayment Contract"), entered into between CUWCD and the United States for this water supply; and

WHEREAS, pursuant to the ULS Repayment Contract, CUWCD has the right to market and allot the ULS Project Water and to use Bonneville Unit features ("Project Works"), which

include ULS features, to deliver ULS Project Water for use by CUWCD's petitioners and contract holders; and

WHEREAS, SUVMWA has authority to petition CUWCD for ULS Project Water to provide water for M&I secondary use; and

WHEREAS, it is the purpose of this Petition for CUWCD to market and allot a portion of the ULS Project Water to SUVMWA on the terms and conditions herein provided; and

WHEREAS, Section 1.2.1.2.5 of the Utah Lake Drainage Basin Water Delivery System Final Environmental Impact Statement imposes the following requirements for contracts executed with CUWCD relating to the ULS:

“... the repayment contracts and water petitions listed in Tables 1-35 and 1-37 will include provisions requiring the water users to: 1) comply with the State of Utah’s water conservation goals consisting of a 12.5 percent reduction in per capita water use by 2020 and a 25 percent reduction in per capita water use by 2050, using 2000 water use as a comparison basis; 2) annual reporting of actual per capita water use; and 3) appropriate penalties if the conservation goals are not met”; and

WHEREAS it is the intent of the Parties to implement this requirement through the ULS Repayment Contract and this Petition with the understanding that this conservation obligation applies to all M&I water developed by the Bonneville Unit of the Central Utah Project (“Project Water”), including the ULS Project Water utilized for secondary municipal irrigation use.

NOW THEREFORE, in consideration of the mutual and dependent covenants herein contained, it is mutually agreed between the parties hereto as follows:

1. Petition for ULS Project Water:

(a) SUVMWA hereby petitions CUWCD for a perpetual annual allotment of 30,000 acre feet of ULS Project Water, which water supply is made available in accordance with the Utah Lake Drainage Basin Water Delivery System Final Environmental Impact Statement (“ULS FEIS”) and the 2004 Supplement to the 1988 Definite Plan Report for the Bonneville Unit,

Central Utah Project ("2004 DPR"). As provided herein, SUVMWA shall have the perpetual right to beneficially use the same.

(b) SUVMWA also petitions for a perpetual allocation of any remaining supplies of ULS Project Water that are not otherwise covered by other petitions, or that may become available for petition in the future, in accordance with the same terms and conditions set forth in this Petition.

(c) ULS Project Water will be made available to CUWCD after receipt of one or more block notices ("Block Notice(s)") from the United States as provided for in the ULS Repayment Contract. Upon CUWCD's receipt of a Block Notice(s), the ULS Project Water provided under that Block Notice(s) will be made available to SUVMWA by CUWCD through one or more CUWCD allotment notices ("Allotment Notice(s)"), which Allotment Notice(s) shall be issued to SUVMWA beginning in the year ULS Project Water is first made available to CUWCD.

(d) CUWCD will not allot ULS Project Water in South Utah County to any other similarly situated municipality or political subdivision on terms more advantageous than provided under this Petition.

2. Terms of Payments

SUVMWA agrees to pay CUWCD annually for the following separate costs in the manner and at the rates hereinafter provided, in conformance with the following:

(a) ULS Project Water Development Costs

(1) Under terms of the ULS Repayment Contract, CUWCD has acquired the right to use and market the ULS Project Water developed by construction of the ULS. CUWCD is required to pay the United States all Project costs allocated to the ULS M&I water supply

(including interest during construction) less the non-Federal cost share and pre-authorization investigation costs, whether such water is used or not, over a 50-year repayment period as provided for in the ULS Repayment Contract. The repayment period for water provided under each Block Notice(s) will begin when the Project Works necessary to deliver that block of ULS Project Water have been constructed and the United States has issued the Block Notice(s) to CUWCD. When CUWCD receives the Block Notice(s) from the United States, CUWCD will issue SUVMWA an Allotment Notice(s), and SUVMWA will be required to begin paying CUWCD for that portion of the ULS Project Water provided under the Block Notice(s) and allotted herein. SUVMWA's payment obligation to CUWCD for each block of ULS Project Water will include interest charged at the same rate the United States charges CUWCD (3.222 percent) and will provide for a 50-year repayment period. Except to the extent the annual payment is deferred as provided by paragraph 2(a)(3) of this Petition, SUVMWA shall make its annual payment to CUWCD each year, regardless of whether ULS Project Water is used or not by SUVMWA and/or its Member Municipalities.

(2) The repayment obligation for each block of ULS Project Water, including interest, will be specified in each Block Notice(s). It will also be specified in each corresponding Allotment Notice(s).

(3) CUWCD and its petitioners have the right under the ULS Repayment Contract to request a deferment of up to ten (10) years from the United States under the authority of the Water Supply Act of 1958 (72 Stat. 320; 43 U.S.C. §390b) ("Water Supply Act") of all or a portion of its repayment obligation to the United States as covered in a Block Notice(s) as described herein. No less than six months prior to the date when water will first be available under the initial Block Notice(s) or, under any subsequent Block Notice(s), SUVMWA may

request in writing a deferment from the United States under the Water Supply Act, as authorized by the ULS Repayment Contract. The United States agrees that such deferment will be granted, provided that the terms and conditions of the Water Supply Act have been met. This means that should SUVMWA desire to begin taking and paying for all or part of its ULS Project Water up to ten years after the date the block of ULS Project Water is first available, it will not be entitled to receive and/or use the deferred amount of water nor will it be required to pay for the deferred amount of water during the deferment period. No interest on the repayment for the deferred amount of water will accrue during the deferment period; however, at the end of the authorized deferral period, the annual payment for the ULS Project Water will be higher since SUVMWA will be required to pay for the deferred amount of water over a shorter amortization period.

(4) The repayment amount described herein is estimated to be \$293.32 per acre-foot per year based on estimated construction and interest during construction costs. All construction costs and the allocation of those costs, cited herein, are estimates based on the Draft 2004 DPR. The cost estimates and cost allocation are subject to change based on actual construction costs and interim and final allocations of project costs. The amount reflecting actual construction costs available as of the date the Block Notice(s) is issued will be specified in the Block Notice(s) and in the Allotment Notice(s). SUVMWA will pay to CUWCD initially an amount equal to 66 percent (66%) of CUWCD's repayment obligation to the United States for the allotted ULS Project Water, which includes principal and interest. CUWCD will initially pay thirty-four percent (34%) of said repayment obligation through its Ad Valorem tax revenues and miscellaneous revenues for the ULS Project Water allotted herein. CUWCD reserves the right to modify or eliminate this subsidy at anytime, upon giving SUVMWA at least one-year's prior written notice. Any decrease in the percentage amount paid by CUWCD towards said repayment

obligation, will result in an offsetting increase in the percentage of CUWCD'S repayment obligation to be paid by SUVMWA.

(5) As set forth in the ULS Repayment Contract, each Block Notice(s) will be re-examined periodically by the United States, at intervals no longer than five (5) years after water is first made available, to determine whether during the preceding period changes have occurred to justify the amendment of the Block Notice(s), and if so, the United States shall amend the Block Notice(s) and payment schedules to reflect such changes. CUWCD thus reserves the right to amend any Allotment Notice(s) to conform to any amended Block Notice(s). For example, a change in the allocation of ULS Project Water development costs may result in an amended Block Notice(s) being issued to CUWCD that changes CUWCD's repayment obligation to the United States. CUWCD would then issue an amended Allotment Notice(s) to SUVMWA to reflect the changes to the repayment obligation that are applicable to SUVMWA. Each Allotment Notice(s) and any amendments thereto issued pursuant to this Petition shall become a part of this Petition.

(6) Pursuant to section 210 of the Central Utah Project Completion Act, Titles II through VI of the Act of October 30, 1992 (Public Law 102-575), as amended by the Acts of October 2, 1996, and December 19, 2002 ("CUPCA"), the United States allows CUWCD to prepay all or a portion of its repayment obligations under the ULS Repayment Contract. Any prepayment that CUWCD may choose to make to the United States will not change SUVMWA's payment obligation to CUWCD under this Petition, which payments must be made on an annual basis throughout the repayment period. CUWCD agrees to consider in good faith any request received from SUVMWA to allow SUVMWA to prepay all or some portion of its payment obligation to CUWCD.

(a) SUVMWA and the United States understand that CUWCD may wish to issue bonds to facilitate such prepayment, the interest on which is excluded from gross income from federal income tax purposes with respect to the ULS Project Water, and that the use of and control over the ULS Project Water may be relevant to determining whether such bonds can be issued.

(b) Subject to rights reserved to the United States in Repayment Contract No. Contract No. 04-WC-40-120 ("Repayment Contract") between CUWCD and the United States, and applicable federal law and regulation, the United States agrees that upon the repayment or prepayment of CUWCD's repayment obligations under a Block Notice issued under the terms of the Repayment Contract, the contractual rights of the United States under this petition shall terminate, except the rights of the United States to enforce compliance with the water conservation requirements of Paragraph 8 of this Petition.

(7) Payments required herein from SUVMWA for ULS Project Water shall be paid by SUVMWA to CUWCD annually during the repayment period specified in the Allotment Notice(s). Each payment must be made within 30 days of the date of billing. Such payment shall be made on all ULS Project Water under Allotment Notice(s) regardless of whether all or any portion of the ULS Project Water allotted from CUWCD is used by SUVMWA.

(b) Operation, Maintenance and Replacement ("OM&R") Costs of Project Works.

(1) CUWCD shall operate, maintain, and replace the Project Works. CUWCD will convey and deliver the ULS Project Water allotted herein to SUVMWA in accordance with the ULS FEIS, the 2004 DPR and this Petition. SUVMWA shall pay its fair and equitable share

of annual OM&R costs as determined by CUWCD, following an opportunity for review and comment by SUVMWA, in a manner approved by CUWCD's Board of Trustees that will make a fair and reasonable allocation of costs among all similarly situated Petitioners. OM&R costs are computed based on ULS Project Water under allotment.

(2) The OM&R costs for ULS Project Water shall be computed annually based on a water year from November 1 through October 31. These costs shall be billed to SUVMWA, and SUVMWA shall pay to CUWCD the amount so billed within 30 days from the date the billing from CUWCD is received by SUVMWA. The OM&R payments provided for herein shall be paid regardless of whether all or any portion of the ULS Project Water is used by SUVMWA.

(3) In the event SUVMWA disputes the amount of billed OM&R costs, SUVMWA shall promptly pay any undisputed amount. The disputed amount shall be retained by SUVMWA. The issue regarding payment of the amount in dispute shall be referred to the United States for decision, which decision shall be binding on SUVMWA and CUWCD. Any remaining amount finally determined by the United States to be due shall be paid to CUWCD by SUVMWA within 30 days of receipt of written notice of such final determination.

(c) Payments to OM&R Reserve Fund Accounts.

(1) The 1965 Repayment Contract requires CUWCD to maintain a replacement reserve fund account and an emergency reserve fund account for operation, maintenance and replacement ("OM&R") of Project Works, and CUWCD requires the maintenance of a CUWCD OM&R reserve fund account. SUVMWA shall pay to CUWCD a pro-rata share, based on SUVMWA's relative percentage hereunder of the total quantity of ULS

Project Water under the Block Notice(s), of CUWCD's obligation to maintain said fund accounts as may reasonably be modified in rate or amount by action of CUWCD's Board of Trustees.

(2) The amount specified shall be billed to SUVMWA at the same time and in the same manner as the annual OM&R assessment. SUVMWA shall pay to CUWCD the amount so billed within 30 days from the date the billing from CUWCD is received by SUVMWA. The OM&R reserve fund account payments provided for herein shall be paid regardless of whether all or any portion of the ULS Project Water is used by SUVMWA.

(3) In the event SUVMWA disputes the amount of billed reserve costs, SUVMWA shall promptly pay any undisputed amount. The disputed amount shall be retained by SUVMWA. The issue regarding payment of the amount in dispute shall be referred to the United States for decision, which decision shall be binding on SUVMWA and CUWCD. Any remaining amount finally determined by the United States to be due shall be paid by SUVMWA to CUWCD within 30 days of receipt of written notice of such final determination.

(d) Obligations Not Considered Debt.

It is intended that the financial obligations of SUVMWA in Paragraphs 2(a), (b), and (c), hereof, shall not constitute or give rise to a general obligation or debt of SUVMWA or its Member Municipalities, nor shall it constitute or give rise to a loan of its or their credit within the meaning of any constitutional or statutory limitation, nor constitute or give rise to a charge against SUVMWA or any of its Member Municipalities' general credit or taxing powers. Accordingly, amounts due and payable hereunder shall be payable from its water system revenues or from its other legally available funds by SUVMWA.

(e) Cost Reference Point

As a cost reference point, it is estimated for a 50 year repayment period that SUVMWA will be required to pay an annual cost per acre-foot of ULS Project Water (under paragraph 2 herein) based on the estimates contained in the 2004 DPR using 2002 dollars as follows:

(1)	66% of ULS Project Water Development Costs ¹ :	\$193.59
(2)	OM&R Costs	\$ 7.21
(3)	Payments to OM&R Reserve Funds	<u>\$ 1.20</u>
Total estimated initial cost per acre-foot of Project		
Water - sum of (1), (2), and (3)		\$202.00

3. Delivery of ULS Project Water by CUWCD

(a) ULS Project Water allotted herein is to be made available to SUVMWA from Strawberry Reservoir at delivery points located at various turnouts along the ULS pipelines. All deliveries will be measured through measuring devices located at Project Works.

(b) SUVMWA shall bear a proportionate share of all ULS Project Water conveyance losses based upon its percentage share of the total quantity of water delivered from said measurement point at Strawberry Reservoir to the secondary points of delivery to SUVMWA. The location of the turnouts to SUVMWA shall be mutually agreed upon by the parties, and shall be consistent with the ULS FEIS and the 2004 DPR, or as otherwise agreed to subject to appropriate NEPA compliance.

¹ CUWCD will initially pay the remaining 34% or \$99.76 of the Project Water Development repayment cost of \$293.59 per acre foot.

(c) CUWCD shall provide proper measuring devices at each point of delivery to SUVMWA from the Project Works. SUVMWA shall provide any other proper measuring devices within its distribution system.

(d) No liability shall accrue against CUWCD, or the United States, or any of their officers, agents or employees, for any damages, direct or indirect, sustained by SUVMWA and/or persons acting by, through or under SUVMWA in the event of shortages of ULS Project Water, or CUWCD's inability to deliver ULS Project Water to SUVMWA, not resulting from CUWCD's negligence, or shortages caused by drought, hostile diversion, prior or superior claims, or other similar causes not within the control of CUWCD.

4. Perpetual Nature of Delivery.

The ULS Project Water allotment is made in perpetuity from the time it is committed to SUVMWA under Allotment Notice(s) pursuant to the Block Notice(s).

5. Use and Delivery of ULS Project Water by SUVMWA

(a) SUVMWA and its Member Municipalities shall use the ULS Project Water available to SUVMWA under Allotment Notice(s) only as secondary M&I water for municipal irrigation use in accordance with the ULS FEIS and the 2004 DPR unless otherwise agreed to by the United States and CUWCD. Any such new agreement for use of the ULS Project Water may require additional NEPA compliance.

(b) Subject to the approval of CUWCD and the United States, ULS Project Water may be utilized by SUVMWA by change application or exchange application under Utah law filed by the United States or by SUVMWA upon receipt of prior written consent of the United States and CUWCD. Any such consent may require additional NEPA compliance.

(c) It shall be SUVMWA's responsibility to provide the works and make the necessary arrangements, including any carriage agreements, or approval of any change or exchange applications from the Division of Water Rights, to convey SUVMWA's ULS Project Water from the points of delivery as described herein to places of delivery to SUVMWA's customers. SUVMWA shall construct, operate, maintain and replace, without cost to CUWCD or the United States, any works or facilities used for exchange, storage facilities and water distribution systems and their appurtenant facilities necessary to convey or exchange the ULS Project Water from the points of delivery to the place or places of use for secondary municipal irrigation.

6. Return Flows

It is estimated that approximately 9,660 acre feet of water will flow to Utah Lake as direct return flows from secondary M&I use within the Member Municipalities of SUVMWA. To the extent possible, maintenance of historic inflows to Utah Lake is important to Bonneville Unit operations to protect the ability of the CUWCD to exchange water to Jordanelle Reservoir. Accordingly, return flows to Utah Lake from use of ULS Project Water under this Petition will only be available for recapture and recycling by SUVMWA and/or its Member Municipalities with the express written consent of the CUWCD and the United States. The return flows generally will be reused for Bonneville Unit purposes in Utah Lake to maintain Utah Lake levels and to help satisfy prior water rights as required to allow the exchange of water to Jordanelle Reservoir. The parties acknowledge that the United States, pursuant to the ULS Repayment Contract, has reserved for Project Purposes all of the waste, seepage, and return flow water derived from ULS Project Water delivered pursuant to this Petition.

7. Sales of ULS Project Water Restricted

SUVMWA shall not market or deliver the ULS Project Water allotted herein or any part thereof, outside of the boundaries of SUVMWA's service area, unless approved by CUWCD and the United States. Any such approval may require additional NEPA compliance.

8. Compliance with Water Conservation Requirements

(a) SUVMWA will comply with the State's water conservation goals of reducing per capita water use within SUVMWA's service area by 12.5 percent by the year 2020, and by 25 percent by the year 2050 ("Conservation Goals").

(b) Commencing in the year 2005 and continuing thereafter until 2050, SUVMWA agrees to report annually to CUWCD its average annual per capita water use within SUVMWA's service area. The Annual Report shall be submitted to CUWCD on or before May 1 of each year to enable CUWCD to file its Annual Report with the Director, Utah Division of Water Resources and the Secretary's authorized representative(s) on or before June 1 of each year. Using the per capita water use data from the year 2000 as the base year for comparison, SUVMWA's Annual Report will include updated graphs showing average per capita water use throughout its service area. Each graph will include a plotted line ("Target Line") showing the required annual conservation savings necessary to achieve the goal of 12.5 percent reduction by 2020 and 25 percent reduction by 2050, actual yearly per capita use data points, and a linear regression of those data points ("Actual Progress Line"). The annual data points for the Actual Progress Line will begin in 2000 and extend annually one year at a time as data becomes available through 2050. The regression line is intended to compensate for year to year variations in climatic and economic conditions that affect per capita water use. The Annual Report shall be prepared in a format that is acceptable to the Secretary and shall be available for public review. SUVMWA

will certify in its Annual Report to CUWCD the extent to which it has made annual progress towards achieving the required Conservation Goals.

(c) The Annual Report shall identify SUVMWA's annual progress towards meeting the Conservation Goals and by what amount.

(d) In the event SUVMWA fails to annually certify or cannot annually certify to the CUWCD in its Annual Report that it has made the required annual progress towards meeting the Conservation Goals, then CUWCD shall implement the following corrective measures:

(1) Before the end of the year following any year in which SUVMWA did not or could not certify that the required annual progress has been made towards meeting the Conservation Goals, CUWCD shall surcharge SUVMWA for substantial non-compliance with the annual per capita water use reduction.

(2) The surcharge for the first year of substantial non-compliance shall be five percent (5%) of the SUVMWA's annual repayment obligation for all Project Water then available to SUVMWA under Allotment Notices, less any Project Water that has been turned back by SUVMWA to CUWCD and the Secretary under §207 of CUPCA.

(3) The surcharge for the second consecutive year of substantial non-compliance shall be ten percent (10%) of SUVMWA's annual repayment obligation for all Project Water then available to SUVMWA under Allotment Notices, less any Project Water that has been turned back by SUVMWA to CUWCD and the Secretary under §207 of CUPCA.

(4) The surcharge for the third consecutive year of substantial non-compliance, and any subsequent consecutive years of substantial non-compliance, shall be fifteen percent (15%) of SUVMWA's annual repayment obligation for all Project Water then available

to SUVMWA under CUWCD Allotment Notices, less any Project Water that has been turned back by SUVMWA to CUWCD and the Secretary under §207 of CUPCA.

(5) If CUWCD determines that compliance has been accomplished by SUVMWA within 12 months of the determination of substantial non-compliance, CUWCD shall refund 100 percent (100%) of the collected surcharge, unless the collected surcharge has been expended on water conservation projects as provided in paragraphs (f) and (g) hereof.

(6) The right to impose this surcharge is hereby expressly reserved by CUWCD in this Petition for ULS Water, and SUVMWA hereby agrees that any surcharge so levied by CUWCD shall be paid in addition to the annual repayment obligation of the petitioner as set forth in the individual Allotment Notice(s). The surcharge shall be due and payable at the same time and manner as Petitioner's annual repayment contract payment is due.

(e) For purposes of this Agreement, a determination of annual progress will be made by CUWCD by comparing the Actual Progress Line to the Target Line. The first year of comparison will be 2005. Thereafter, the comparison will be made each year through the year 2050. Annual progress will be certified by CUWCD when the end of the Actual Progress Line for the year of comparison is at or below the Target Line. CUWCD will determine that substantial non-compliance has occurred in a year in which the end of the Actual Progress Line for the year of comparison is above the Target Line. Penalties for substantial non-compliance are described in Paragraph 8(d) above.

(f) The collected surcharge from SUVMWA will be deposited into a segregated interest-bearing account (Conservation Account) that will be maintained and managed by CUWCD. Surcharges collected and deposited to the Conservation Account, together with accrued interest thereon, will be used by CUWCD to help fund water conservation projects

developed under Section 207 of CUPCA by SUVMWA within its service area to substantially comply with the annual reduction of per capita water use.

(g) Water conservation projects to be developed under Section 207 of CUPCA aimed at reducing the per capita water use within SUVMWA's service area may include, but are not hereby limited to, construction of new water-saving delivery and storage facilities; payment of incentives for removal of traditional lawns and groundcover and their replacement with water-wise landscaping; development of staged, conservation-incentive billing; funding of education programs, etc.

(1) Determinations on the particular programs to be funded from the Conservation Account and the manner in which such account is administered shall be made by CUWCD's Board of Trustees ("Trustees") and the Secretary's authorized representative(s).

(2) The decision of the Trustees shall be subject to the approval of the Secretary prior to disbursement of any funds from the Conservation Account. Any funds not disbursed in any single year shall be carried over in the Conservation Account for use in subsequent years.

(3) In any event, all funds in the Conservation Account must be disbursed by the end of 2055. At that time, the Conservation Account shall be discontinued and the Trustees shall no longer have responsibility for the administration thereof.

9. Section 207 Water Conservation Contracts

Pursuant to Section 207(b)(4) of CUPCA, all ULS Project Water saved through the implementation of a conservation measure approved by the United States may be retained by SUVMWA for its own use or disposition. SUVMWA may, in its sole discretion, make available to CUWCD water equivalent to the water saved, which CUWCD may make available to the

United States, to be used for instream flows in addition to the stream flow requirements established by Section 303 of CUPCA. If such saved ULS Project Water is made available to the United States, the United States shall reduce the annual contractual repayment obligation of CUWCD for any such ULS Project Water equal to the ULS Project Water repayment obligation for delivered water, including operation and maintenance expenses, for water saved for instream flows. CUWCD shall credit or rebate to SUVMWA its proportionate share of CUWCD's repayment savings for reductions in deliveries of ULS Project Water as a result of this provision.

10. Water Sales Contracts

SUVMWA shall allocate the ULS Project Water to those individual Member Municipalities that comprise SUVMWA who desire to use of ULS Project Water on such terms and conditions as SUVMWA and its Member Municipalities agree upon. In allocating the ULS Project Water, SUVMWA may provide for the reallocation of ULS Project Water among the various Member Municipalities in the event one such member requires more or less water than it initially allocated to it. Each Member Municipality, as a condition to the CUWCD's acceptance of this Petition, has adopted the ordinance attached hereto authorizing each Member Municipality to sign this Petition to secure its performance under the Water Sales Contracts to SUVMWA and SUVMWA's obligations to the CUWCD under this Petition. The Member Municipalities may apportion the obligation created by this Petition among them in the same proportion as the quantity of ULS Project Water allocated to them by SUVMWA. If the amount of ULS Project Water allocated is adjusted among the Member Municipalities, as provided herein, the proportionate share of the obligation to be paid by each Member Municipality through SUVMWA shall be similarly adjusted among them. Copies of all allocation agreements shall be kept on file with the CUWCD and SUVMWA.

11. Quantity of Water Delivered

(a) Subject to CUWCD's operating criteria, ULS Project Water shall be released from Strawberry Reservoir; provided, however, that any ULS Project Water remaining in storage at midnight on October 31 of each year shall revert to CUWCD.

(b) In the event of shortage, deliveries of the ULS Project Water allotted hereunder shall be reduced in proportion to the total ULS Project Water supply available for M&I use, as determined by CUWCD. Payments to CUWCD provided herein shall not be reduced because of any such shortage.

(c) It is acknowledged that the sale and delivery of ULS Project Water is subject to the terms and conditions of the Agreement of February 27, 1980, by and among the United States, the State of Utah, and CUWCD relating to the maintenance of minimum stream flows at locations within the Duchesne and Strawberry River drainages and the September 13, 1990, Amendment to Agreement (both collectively referred to herein as the "Instream Flow Agreement"). The Instream Flow Agreement provides that in the event of shortages, the shortages will be shared on a pro-rata basis between the water committed for instream flows and that portion of the ULS Project Water committed for transmountain diversion for irrigation use. Water for M&I uses shall have a higher priority than either irrigation water or minimum stream flow water; provided, however, that this priority shall not apply to Bonneville Unit irrigation water developed by the Project converted to M&I use as authorized in the 1965 Repayment Contract.

12. Collection of Fees and Charges

SUVMWA will levy and collect all necessary fees, charges, and assessments from its member municipalities in sufficient amounts to pay to CUWCD all separate costs required by

Paragraph 2 herein ("Petition Payments"). SUVMWA shall pay to CUWCD the full amount of the Petition Payments regardless of whether SUVMWA collects the full amount of its annual fees, charges, and assessments from its Member Municipalities.

13. Refusal of Water in Case of Default

No ULS Project Water shall be delivered to SUVMWA if it is in arrears for more than 30 days in the payment to CUWCD of any payment required by this Petition. Deliveries shall resume upon payment in full of any such arrearage and any interest and penalties imposed by this Petition. Funds received to cure this arrearage shall be first applied by CUWCD to payment of accrued interest, then to payment of any penalties, and then towards the reduction of principal.

14. Modification of Petition

(a) If SUVMWA determines that the quantity of ULS Project Water petitioned for is in excess of SUVMWA's needs and that other water users within CUWCD have a need for this ULS Project Water, CUWCD, with the approval of SUVMWA and the United States, may modify this Petition by reducing the total number of acre-feet of ULS Project Water allotted to SUVMWA and by making a corresponding reduction in SUVMWA's payment obligations.

(b) If SUVMWA notifies CUWCD that it no longer has a need for any of the ULS Project Water, CUWCD, in its sole discretion, may terminate this Petition, which termination is subject to the approval of the United States. In the event of termination, SUVMWA shall be relieved of any future obligation under this Petition, but termination shall not relieve SUVMWA of its obligation to pay CUWCD any past due charges under paragraph 2 of this Petition.

(c) If CUWCD cannot locate another petitioner acceptable to CUWCD for this ULS Project Water, or if the United States will not consent to the termination of this Petition, this Petition shall remain in full force and effect.

15. Delinquency Charges

Every payment required under this Petition which shall remain unpaid after it shall have become due and payable shall be subject to interest in the amount of one percent (1%) of the delinquent amount per month from the date of delinquency until such time as the delinquent amount and all accrued interest has been paid in full; provided, however, that no interest shall be charged to or paid by SUVMWA unless such delinquency continues for more than thirty (30) days.

16. Petition Subject to the ULS Repayment Contract

This Petition is expressly made subject to the terms and conditions of the ULS Repayment Contract, Contract No. 04-WC-40-120, between CUWCD and the United States.

17. Equal Employment Opportunity

As required by the ULS Repayment Contract, during the performance of this contract, SUVMWA agrees as follows:

(a) SUVMWA will not discriminate against any employee or applicant for employment because of race, color, religion, sex, disability, or national origin. SUVMWA will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, disability, or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. SUVMWA agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the United States setting forth the provisions of this nondiscrimination clause.

(b) SUVMWA will, in all solicitations or advertisements for employees placed by or on behalf of SUVMWA; state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, disability, or national origin.

(c) SUVMWA will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the United States, advising the labor union or workers' representative of SUVMWA's commitments under Section 202 of Executive Order 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(d) SUVMWA will comply with all provisions of Executive Order No. 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(e) SUVMWA will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to its books, records, and accounts by the Secretary and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(f) In the event of SUVMWA's noncompliance with the nondiscrimination clauses of this contract or with any of such rules, regulations, or orders, this contract may be canceled, terminated or suspended in whole or in part and SUVMWA may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965 or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

18. Compliance with Laws

SUVMWA shall, within its legal authority, comply fully with all applicable federal laws, orders and regulations, and the laws of the State of Utah, all as administered by appropriate authorities, concerning the pollution of streams, reservoirs, ground water, or water courses with respect to thermal pollution or the discharge of refuse, garbage, sewage effluent, industrial waste, oil, mine tailings, mineral salts or other pollutants. SUVMWA shall similarly comply with all applicable federal laws, orders and regulations, and the laws of the State of Utah, all as administered by appropriate authorities, concerning the pollution of air with respect to radioactive materials or other pollutants.

19. Rule Making Authority

SUVMWA and CUWCD reserve the right to adopt rules and regulations, and to exercise their full statutory powers, including specifically the right to amend their rates, rules and their regulations in the future, and the right to exercise their statutory powers, as they now exist or are amended or enacted in the future, and it is expressly agreed that SUVMWA and CUWCD, by signing this Petition, have not surrendered any of their rights in this regard.

20. Subject To Construction of Facilities and Appropriation of Funds

This Petition is subject to the United States and CUWCD constructing facilities essential for the delivery of water committed hereby and to water being available under the Bonneville Unit water rights. The expenditure of any money, or the performance of any work by the United States and or CUWCD, which may require appropriations of money by Congress, or the allotment of funds, shall be contingent upon such appropriations or allotments being made. The failure of Congress to so appropriate funds, or the absence of any allotment of funds, shall not relieve SUVMWA or its Member Municipalities from any obligations under Allotment Notice(s)

given under this Petition for ULS Project Water already being delivered, and no liability shall accrue to the United States or CUWCD in case such funds are not appropriated or allotted and ULS Project Water is not delivered.

21. Water Conservancy Act of Utah

This Petition shall be subject to the Water Conservancy Act of Utah, Title 17A, Chapter 2, Section 1401 *et seq.* Utah Code Annotated, as it may be amended from time to time; the rules and regulations of the Board of Trustees of CUWCD as adopted from time to time; and, the ULS Repayment Contract and the 1965 Repayment Contract as amended and supplemented; provided that such amendments, rules, regulations and contracts shall not impair SUVMWA's rights, duties and obligations under this Petition.

22. Federal Law

This Petition is subject to all applicable Federal laws, particularly the Federal Reclamation Law, Act of June 17, 1902, (32 Stat. 388), and acts amendatory thereof and supplementary thereto.

23. Termination of Petition

CUWCD may terminate this Petition by written notice to SUVMWA if SUVMWA is in arrears more than 12 months in any payments owed to CUWCD under Paragraph 2 of this Petition. Notwithstanding the foregoing, neither CUWCD nor SUVMWA shall have the right to terminate this Petition without the express approval of the United States, which approval shall not be unreasonably withheld.

24. Assignment Limited - Successors and Assigns Obligated

The provisions of this Petition shall apply to and bind the successors and assigns of the parties hereto, but no assignment or transfer of this Petition by SUVMWA, or any part or interest therein, shall be valid until approved in writing by CUWCD and the United States.

25. Notices

Any notice, demand, or request authorized or required by this contract shall be deemed to have been given to the United States when mailed, postage prepaid, or delivered to the Program Director, Central Utah Project Completion Act Office, Department of Interior, 302 East 1860 South, Provo, Utah 84606; to CUWCD when mailed, postage prepaid, or delivered to the General Manager, Central Utah Water Conservancy District, 355 West University Parkway, Orem, Utah 84058; and to SUVMWA when mailed, postage prepaid, or delivered to the Chairman, South Utah Valley Municipal Water Association, P.O. Box 412, Spanish Fork, Utah 84660. The designation of the addressee or the address may be changed by notice given in the same manner as provided in this article for other notices.

26. Officials Not to Benefit

No Member of or Delegate to the Congress, Resident Commissioner, or official of CUWCD and/or SUVMWA shall benefit from this contract other than as a water user or landowner in the same manner as other water users or landowners.

IN WITNESS WHEREOF, the parties hereto have signed their names the day and year first written above.

**CENTRAL UTAH WATER
CONSERVANCY DISTRICT**

By: *E. J. Hoke*
President, Board of Trustees

ATTEST:

Hon. A. Christensen
Secretary

**UNITED STATES OF AMERICA
DEPARTMENT OF INTERIOR**

By: *Ronald Johnston*
Ronald Johnston, Program Director

APPROVED:

Christopher B. Rich
Office of the Regional Solicitor
Christopher B. Rich, Esq.

SOUTH UTAH VALLEY MUNICIPAL WATER ASSOCIATION

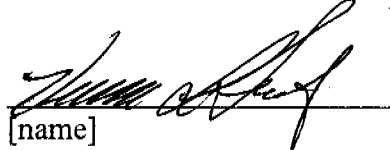
By: *Dale R. Wills*
[name] Dale R. Wills
Its: President

Attest: *Mary Lynn Bjorn*
By: [name]
Its: Recording Secretary

Elk Ridge Town

SEAL

Attest: City Recorder


[name]
Mayor

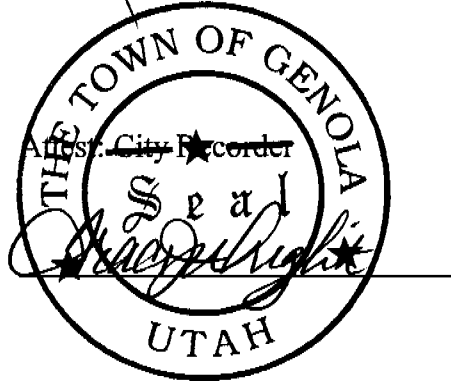

Lanice D Davis

Genola Town

SEAL

Attest: City Recorder

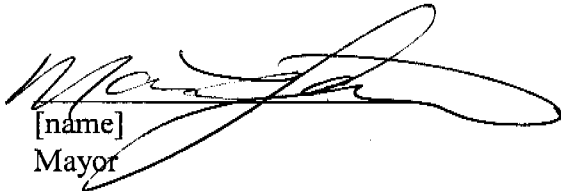

[name]
Mayor

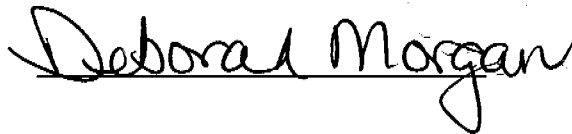


Goshen Town

SEAL

Attest: City Recorder

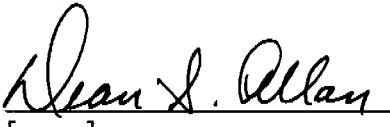

[name]
Mayor


Deborah Morgan

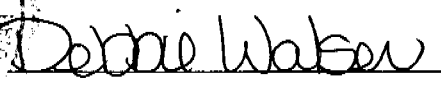
Mapleton City

SEAL

Attest: City Recorder


[name]
Mayor




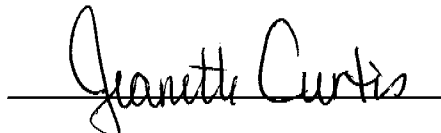

Debbie Watson

Payson City



Attest: City Recorder


[name]
Mayor

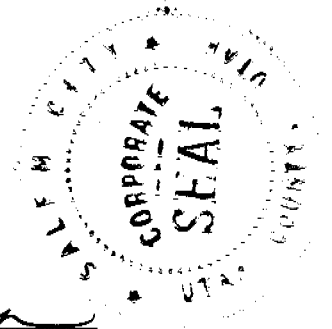

Janette Curtis

Salem City SEAL

Dandy Abrahamson
[name]
Mayor

Attest: City Recorder

Jeff Nul

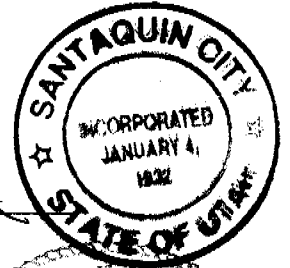


Santaquin City SEAL

Paul Scott
[name]
Mayor

Attest: City Recorder

Stewart



Spanish Fork City SEAL

Paul R Barney
[name]
Mayor

Attest: City Recorder

Kent R. Clark



Springville City SEAL

[Signature]
[name]
Mayor

Attest: City Recorder

Jo Evans

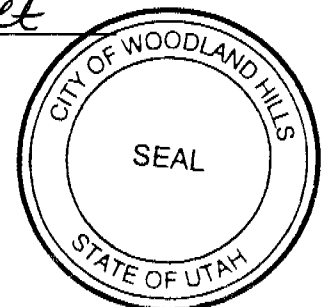


Woodland Hills Town SEAL

Noby M. Harding
[name]
Mayor

Attest: City Recorder

Brenda Gruet



RESOLUTION

Be it and it is hereby resolved that the Governing Authority of the South Utah Valley Municipal Water Association has approved that certain Petition to the Central Utah Water Conservancy the District for an allotment of water for municipal and industrial use, designated *Petition of South Utah Valley Municipal Water Association to the Central Utah Water Conservancy District for the Allotment of Water for Municipal and Industrial Use*, and hereby authorizes its officers to execute said Petition on its behalf.

CERTIFICATE

I Gaylynn B. Jensen, Secretary of the South Utah Valley Municipal Water Association do hereby certify that the foregoing is a full, true, and correct copy of the resolution passed by the Governing Authority of the South Utah Valley Municipal Water Association at a meeting held on the 9 day of September, 2004. I further certify that at said meeting 9 Governing Authority Members were present, that 9 Governing Authority Members voted in favor of said resolution and that 0 Governing Authority Members voted against said resolution. I further certify that the total number of Governing Authority Members of South Utah Valley Municipal Water Association is 10.

Dated this 23 day of September, 2004.

Gaylynn B. Jensen
Secretary

ACKNOWLEDGMENT

STATE OF UTAH)

:SS

COUNTY OF UTAH)

On the _____ day of _____, 2004, personally appeared before me _____ and _____, who being by me duly sworn, did say that _____ is the Secretary and Chairman of South Utah Valley Municipal Water Association, and that the aforesaid Petition to the Central Utah Water Conservancy the District was signed on behalf of said the Association by authority of a resolution of its Governing Authority at a regular meeting of said Governing Authority, and at which a quorum of the Governing Authority was in attendance, and the said _____ and the said _____ acknowledged to me that said the South Utah Valley Municipal Water Association executed the same.

My Commission Expires:

Notary Public

Residing at _____

NOT
NEEDED

**AN ORDINANCE AUTHORIZING THE EXECUTION AND DELIVERY
OF PETITION TO THE CENTRAL UTAH WATER CONSERVANCY DISTRICT
FOR ALLOTMENT OF WATER FOR MUNICIPAL AND INDUSTRIAL USE**

WHEREAS, City of Elk Ridge (the "City"), a member Municipality of the South Utah Valley Municipal Water Association, ("Association"), desires to Petition the Central Utah Water Conservancy District ("District"), individually and collectively through the Association, for an Allotment of Water for Municipal and Industrial Use to provide a needed water supply for the inhabitants of the City, in accordance with U. C. A. §17A-2-1414 of the Utah Water Conservancy District Act, as amended; and

WHEREAS, the City Council ("Council") has determined that it is necessary, desirable and in the best interests of the City to authorize the execution and delivery of the Petition by the City and the Association and the taking of other necessary actions in connection therewith;

NOW, THEREFORE, BE IT ORDAINED by the Council of City as follows:

Section 1. Execution, Delivery and Filing of the Petition. The Petition, in substantially the form attached hereto, is hereby authorized and approved and the Mayor is hereby authorized, empowered and directed to execute and deliver the Petition on behalf of the City, and that the City is bound thereby, and that the Association is hereby expressly authorized to execute the Petition on behalf of the Association and its Member Municipalities. The City Recorder is hereby authorized, empowered and directed to countersign and affix the corporate seal of the City to the Petition and to attest such seal, the execution thereof to constitute conclusive evidence of such approval. Promptly upon its execution, the Petition shall be filed in the official records of the City as required by Section 11-13-10, Utah Code Annotated 1953, as amended and shall be published and posted as required by law.


Section 2. Miscellaneous; Effective Date.

(a) All previous acts and ordinance in conflict with this ordinance or any part hereof are hereby repealed to the extent of such conflict.

(b) In case any provision in this ordinance shall be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired thereby.

(c) This ordinance shall take effect immediately upon its adoption, approval, publication and posting.

ADOPTED AND APPROVED this 14 day of Sept, 2004.



MAYOR

[SEAL]



ATTEST: CITY RECORDER

CERTIFICATE

STATE OF UTAH)

)

COUNTY OF UTAH)

I, the undersigned, do hereby certify that I am the duly qualified and acting City Recorder of the City of Elk Ridge. I further certify, according to the records of the City of Elk Ridge in my official position and upon my own knowledge and belief, that:

(1) the City of Elk Ridge ("City") is a duly organized and existing municipality under the provisions of the State of Utah; the legislative powers of the City are by law vested in a City Council composed of 5 members ("Council"); and neither the corporate existence of the City, nor the titles of the members of the Council or the officers of the City are being contested;

(2) the Council met in regular public session on Sept 14, 2004, (the "Meeting"), to consider and act upon the items listed on the Notice of Public Meeting attached as EXHIBIT A hereto (the "Notice"), which included, among other things, consideration of the Ordinance attached hereto (the "Ordinance");

(3) the Meeting was held at the regular meeting place of the Council within the boundaries of the City, as set forth in the Notice of Annual Meeting Schedule for 2004 which had been posted and provided in accordance with Section 52-4-6(1), Utah Code Annotated 1953, as amended;

(4) in accordance with the requirements of Section 52-4-6(2), Utah Code Annotated 1953, as amended, not less than 24 hours' public notice of the agenda, date, time and place of the Meeting was given by the posting of the Notice at the principal office of the Council and by providing a copy of the Notice to a newspaper of general circulation within the geographic jurisdiction of the City or to a local media correspondent;

(5) a quorum of the Council was present and acting throughout the Meeting; during the Meeting, the Ordinance was introduced in written form and, pursuant to

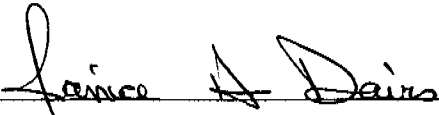
motion duly made and seconded, was adopted and approved by a vote of at least a majority of the members of the Council present and voting at the Meeting;

(6) The Ordinance was signed by the Mayor and was sealed and the seal attested by the undersigned as Secretary of the Council, and the Ordinance, its exhibits, and the minutes of the Meeting are recorded in the official records of the City.

(7) The Petition has been approved by an attorney duly authorized by the City as being in proper form and compatible with the laws of the State of Utah; and a true, correct and complete copy of the Petition has been filed in the office records of the City in compliance with law; and,

(8) All conditions, acts and things required by law to exist, to have happened and to be performed by the City preliminary to and in connection with the execution and delivery of the Petition exist, have happened and have been performed.

IN WITNESS WHEREOF, I have subscribed my official signature and impressed or imprinted hereon the official seal of the City this day, Sept 20, 2004.



CITY RECORDER

[SEAL]

**AN ORDINANCE AUTHORIZING THE EXECUTION AND DELIVERY
OF PETITION TO THE CENTRAL UTAH WATER CONSERVANCY DISTRICT
FOR ALLOTMENT OF WATER FOR MUNICIPAL AND INDUSTRIAL USE**

WHEREAS, City of GOSHEN (the "City"), a member Municipality of the South Utah Valley Municipal Water Association, ("Association"), desires to Petition the Central Utah Water Conservancy District ("District"), individually and collectively through the Association, for an Allotment of Water for Municipal and Industrial Use to provide a needed water supply for the inhabitants of the City, in accordance with U. C. A. §17A-2-1414 of the Utah Water Conservancy District Act, as amended; and

WHEREAS, the City Council ("Council") has determined that it is necessary, desirable and in the best interests of the City to authorize the execution and delivery of the Petition by the City and the Association and the taking of other necessary actions in connection therewith;

NOW, THEREFORE, BE IT ORDAINED by the Council of City as follows:

Section 1. Execution, Delivery and Filing of the Petition. The Petition, in substantially the form attached hereto, is hereby authorized and approved and the Mayor is hereby authorized, empowered and directed to execute and deliver the Petition on behalf of the City, and that the City is bound thereby, and that the Association is hereby expressly authorized to execute the Petition on behalf of the Association and its Member Municipalities. The City Recorder is hereby authorized, empowered and directed to countersign and affix the corporate seal of the City to the Petition and to attest such seal, the execution thereof to constitute conclusive evidence of such approval. Promptly upon its execution, the Petition shall be filed in the official records of the City as required by Section 11-13-10, Utah Code Annotated 1953, as amended and shall be published and posted as required by law.

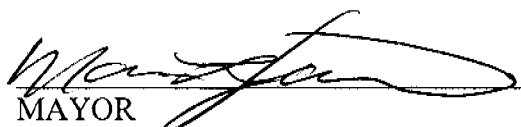
Section 2. Miscellaneous; Effective Date.

(a) All previous acts and ordinance in conflict with this ordinance or any part hereof are hereby repealed to the extent of such conflict.

(b) In case any provision in this ordinance shall be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired thereby.

(c) This ordinance shall take effect immediately upon its adoption, approval, publication and posting.

ADOPTED AND APPROVED this 14 day of SEPTEMBER 2004.


MAYOR


ATTEST: CITY RECORDER

[SEAL]



CERTIFICATE

STATE OF UTAH)
)
COUNTY OF UTAH)

I, the undersigned, do hereby certify that I am the duly qualified and acting City Recorder of the City of GOSHEN. I further certify, according to the records of the City of GOSHEN in my official position and upon my own knowledge and belief, that:

(1) the City of GOSHEN ("City") is a duly organized and existing municipality under the provisions of the STATE OF UTAH; the legislative powers of the City are by law vested in a City Council composed of 4 members ("Council"); and neither the corporate existence of the City, nor the titles of the members of the Council or the officers of the City are being contested;

(2) the Council met in regular public session on SEPTEMBER 14, 2004, (the "Meeting"), to consider and act upon the items listed on the Notice of Public Meeting attached as EXHIBIT A hereto (the "Notice"), which included, among other things, consideration of the Ordinance attached hereto (the "Ordinance");

(3) the Meeting was held at the regular meeting place of the Council within the boundaries of the City, as set forth in the Notice of Annual Meeting Schedule for 2004 which had been posted and provided in accordance with Section 52-4-6(1), Utah Code Annotated 1953, as amended;

(4) in accordance with the requirements of Section 52-4-6(2), Utah Code Annotated 1953, as amended, not less than 24 hours' public notice of the agenda, date, time and place of the Meeting was given by the posting of the Notice at the principal office of the Council and by providing a copy of the Notice to a newspaper of general circulation within the geographic jurisdiction of the City or to a local media correspondent;

(5) a quorum of the Council was present and acting throughout the Meeting; during the Meeting, the Ordinance was introduced in written form and, pursuant to

motion duly made and seconded, was adopted and approved by a vote of at least a majority of the members of the Council present and voting at the Meeting;

(6) The Ordinance was signed by the Mayor and was sealed and the seal attested by the undersigned as Secretary of the Council, and the Ordinance, its exhibits, and the minutes of the Meeting are recorded in the official records of the City.

(7) The Petition has been approved by an attorney duly authorized by the City as being in proper form and compatible with the laws of the State of Utah; and a true, correct and complete copy of the Petition has been filed in the office records of the City in compliance with law; and,

(8) All conditions, acts and things required by law to exist, to have happened and to be performed by the City preliminary to and in connection with the execution and delivery of the Petition exist, have happened and have been performed.

IN WITNESS WHEREOF, I have subscribed my official signature and impressed or imprinted hereon the official seal of the City this day, SEPTEMBER 20, 2004.

Deborah Morgan
CITY RECORDER

[SEAL]

**AN ORDINANCE AUTHORIZING THE EXECUTION AND DELIVERY
OF PETITION TO THE CENTRAL UTAH WATER CONSERVANCY DISTRICT
FOR ALLOTMENT OF WATER FOR MUNICIPAL AND INDUSTRIAL USE**

WHEREAS, City of PAYSON (the "City"), a member Municipality of the South Utah Valley Municipal Water Association, ("Association"), desires to Petition the Central Utah Water Conservancy District ("District"), individually and collectively through the Association, for an Allotment of Water for Municipal and Industrial Use to provide a needed water supply for the inhabitants of the City, in accordance with U. C. A. §17A-2-1414 of the Utah Water Conservancy District Act, as amended; and

WHEREAS, the City Council ("Council") has determined that it is necessary, desirable and in the best interests of the City to authorize the execution and delivery of the Petition by the City and the Association and the taking of other necessary actions in connection therewith;

NOW, THEREFORE, BE IT ORDAINED by the Council of City as follows:

Section 1. Execution, Delivery and Filing of the Petition. The Petition, in substantially the form attached hereto, is hereby authorized and approved and the Mayor is hereby authorized, empowered and directed to execute and deliver the Petition on behalf of the City, and that the City is bound thereby, and that the Association is hereby expressly authorized to execute the Petition on behalf of the Association and its Member Municipalities. The City Recorder is hereby authorized, empowered and directed to countersign and affix the corporate seal of the City to the Petition and to attest such seal, the execution thereof to constitute conclusive evidence of such approval. Promptly upon its execution, the Petition shall be filed in the official records of the City as required by Section 11-13-10, Utah Code Annotated 1953, as amended and shall be published and posted as required by law.

Section 2. Miscellaneous; Effective Date.

(a) All previous acts and ordinance in conflict with this ordinance or any part hereof are hereby repealed to the extent of such conflict.

(b) In case any provision in this ordinance shall be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired thereby.

(c) This ordinance shall take effect immediately upon its adoption, approval, publication and posting.

ADOPTED AND APPROVED this 1 day of SEPTEMBER, 2004.

Bernell G. Evans
MAYOR

Jeanette Curtis
ATTEST: CITY RECORDER



CERTIFICATE

STATE OF UTAH)

)

COUNTY OF UTAH)

I, the undersigned, do hereby certify that I am the duly qualified and acting City Recorder of the City of PAYSON. I further certify, according to the records of the City of PAYSON in my official position and upon my own knowledge and belief, that:

(1) the City of PAYSON ("City") is a duly organized and existing municipality under the provisions of the STATE OF UTAH; the legislative powers of the City are by law vested in a City Council composed of 5 members ("Council"); and neither the corporate existence of the City, nor the titles of the members of the Council or the officers of the City are being contested;

(2) the Council met in regular public session on SEPTEMBER 1, 2004, (the "Meeting"), to consider and act upon the items listed on the Notice of Public Meeting attached as EXHIBIT A hereto (the "Notice"), which included, among other things, consideration of the Ordinance attached hereto (the "Ordinance");

(3) the Meeting was held at the regular meeting place of the Council within the boundaries of the City, as set forth in the Notice of Annual Meeting Schedule for 2004 which had been posted and provided in accordance with Section 52-4-6(1), Utah Code Annotated 1953, as amended;

(4) in accordance with the requirements of Section 52-4-6(2), Utah Code Annotated 1953, as amended, not less than 24 hours' public notice of the agenda, date, time and place of the Meeting was given by the posting of the Notice at the principal office of the Council and by providing a copy of the Notice to a newspaper of general circulation within the geographic jurisdiction of the City or to a local media correspondent;

(5) a quorum of the Council was present and acting throughout the Meeting; during the Meeting, the Ordinance was introduced in written form and, pursuant to

motion duly made and seconded, was adopted and approved by a vote of at least a majority of the members of the Council present and voting at the Meeting;

(6) The Ordinance was signed by the Mayor and was sealed and the seal attested by the undersigned as Secretary of the Council, and the Ordinance, its exhibits, and the minutes of the Meeting are recorded in the official records of the City.

(7) The Petition has been approved by an attorney duly authorized by the City as being in proper form and compatible with the laws of the State of Utah; and a true, correct and complete copy of the Petition has been filed in the office records of the City in compliance with law; and,

(8) All conditions, acts and things required by law to exist, to have happened and to be performed by the City preliminary to and in connection with the execution and delivery of the Petition exist, have happened and have been performed.

IN WITNESS WHEREOF, I have subscribed my official signature and impressed or imprinted hereon the official seal of the City this day, SEPTEMBER 20, 2004.



CITY RECORDER



**AN ORDINANCE AUTHORIZING THE EXECUTION AND DELIVERY
OF PETITION TO THE CENTRAL UTAH WATER CONSERVANCY DISTRICT
FOR ALLOTMENT OF WATER FOR MUNICIPAL AND INDUSTRIAL USE**

WHEREAS, City of Woodland Hills (the "City"), a member Municipality of the South Utah Valley Municipal Water Association, ("Association"), desires to Petition the Central Utah Water Conservancy District ("District"), individually and collectively through the Association, for an Allotment of Water for Municipal and Industrial Use to provide a needed water supply for the inhabitants of the City, in accordance with U. C. A. §17A-2-1414 of the Utah Water Conservancy District Act, as amended; and

WHEREAS, the City Council ("Council") has determined that it is necessary, desirable and in the best interests of the City to authorize the execution and delivery of the Petition by the City and the Association and the taking of other necessary actions in connection therewith;

NOW, THEREFORE, BE IT ORDAINED by the Council of City as follows:

Section 1. Execution, Delivery and Filing of the Petition. The Petition, in substantially the form attached hereto, is hereby authorized and approved and the Mayor is hereby authorized, empowered and directed to execute and deliver the Petition on behalf of the City, and that the City is bound thereby, and that the Association is hereby expressly authorized to execute the Petition on behalf of the Association and its Member Municipalities. The City Recorder is hereby authorized, empowered and directed to countersign and affix the corporate seal of the City to the Petition and to attest such seal, the execution thereof to constitute conclusive evidence of such approval. Promptly upon its execution, the Petition shall be filed in the official records of the City as required by Section 11-13-10, Utah Code Annotated 1953, as amended and shall be published and posted as required by law.

Section 2. Miscellaneous; Effective Date.

(a) All previous acts and ordinance in conflict with this ordinance or any part hereof are hereby repealed to the extent of such conflict.

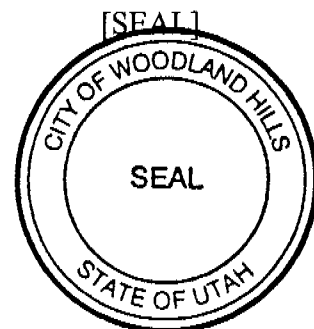
(b) In case any provision in this ordinance shall be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired thereby.

(c) This ordinance shall take effect immediately upon its adoption, approval, publication and posting.

ADOPTED AND APPROVED this 22 day of Sept., 2004.

Koby M. Gaudin
MAYOR

Brenda Truett
ATTEST: CITY RECORDER



CERTIFICATE

STATE OF UTAH)

)

COUNTY OF UTAH)

I, the undersigned, do hereby certify that I am the duly qualified and acting City Recorder of the City of Woodland Hills. I further certify, according to the records of the City of Woodland Hills in my official position and upon my own knowledge and belief, that:

(1) the City of Woodland Hills ("City") is a duly organized and existing municipality under the provisions of the State of Utah; the legislative powers of the City are by law vested in a City Council composed of 4 members ("Council"); and neither the corporate existence of the City, nor the titles of the members of the Council or the officers of the City are being contested;

(2) the Council met in regular public session on Sept 22, 2004, (the "Meeting"), to consider and act upon the items listed on the Notice of Public Meeting attached as EXHIBIT A hereto (the "Notice"), which included, among other things, consideration of the Ordinance attached hereto (the "Ordinance");

(3) the Meeting was held at the regular meeting place of the Council within the boundaries of the City, as set forth in the Notice of Annual Meeting Schedule for 2004 which had been posted and provided in accordance with Section 52-4-6(1), Utah Code Annotated 1953, as amended;

(4) in accordance with the requirements of Section 52-4-6(2), Utah Code Annotated 1953, as amended, not less than 24 hours' public notice of the agenda, date, time and place of the Meeting was given by the posting of the Notice at the principal office of the Council and by providing a copy of the Notice to a newspaper of general circulation within the geographic jurisdiction of the City or to a local media correspondent;

(5) a quorum of the Council was present and acting throughout the Meeting; during the Meeting, the Ordinance was introduced in written form and, pursuant to

motion duly made and seconded, was adopted and approved by a vote of at least a majority of the members of the Council present and voting at the Meeting;

(6) The Ordinance was signed by the Mayor and was sealed and the seal attested by the undersigned as Secretary of the Council, and the Ordinance, its exhibits, and the minutes of the Meeting are recorded in the official records of the City.

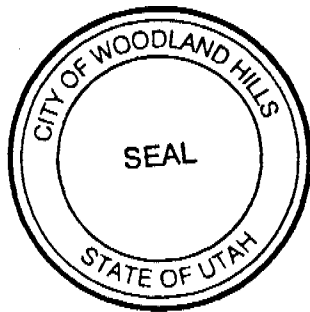
(7) The Petition has been approved by an attorney duly authorized by the City as being in proper form and compatible with the laws of the State of Utah; and a true, correct and complete copy of the Petition has been filed in the office records of the City in compliance with law; and,

(8) All conditions, acts and things required by law to exist, to have happened and to be performed by the City preliminary to and in connection with the execution and delivery of the Petition exist, have happened and have been performed.

IN WITNESS WHEREOF, I have subscribed my official signature and impressed or imprinted hereon the official seal of the City this day, Sept. 23, 2004.

Brenda Truett
CITY RECORDER

[SEAL]



**AN ORDINANCE AUTHORIZING THE EXECUTION AND DELIVERY
OF PETITION TO THE CENTRAL UTAH WATER CONSERVANCY DISTRICT
FOR ALLOTMENT OF WATER FOR MUNICIPAL AND INDUSTRIAL USE**

WHEREAS, City of Salem (the "City"), a member Municipality of the South Utah Valley Municipal Water Association, ("Association"), desires to Petition the Central Utah Water Conservancy District ("District"), individually and collectively through the Association, for an Allotment of Water for Municipal and Industrial Use to provide a needed water supply for the inhabitants of the City, in accordance with U. C. A. §17A-2-1414 of the Utah Water Conservancy District Act, as amended; and

WHEREAS, the City Council ("Council") has determined that it is necessary, desirable and in the best interests of the City to authorize the execution and delivery of the Petition by the City and the Association and the taking of other necessary actions in connection therewith;

NOW, THEREFORE, BE IT ORDAINED by the Council of City as follows:

Section 1. Execution, Delivery and Filing of the Petition. The Petition, in substantially the form attached hereto, is hereby authorized and approved and the Mayor is hereby authorized, empowered and directed to execute and deliver the Petition on behalf of the City, and that the City is bound thereby, and that the Association is hereby expressly authorized to execute the Petition on behalf of the Association and its Member Municipalities. The City Recorder is hereby authorized, empowered and directed to countersign and affix the corporate seal of the City to the Petition and to attest such seal, the execution thereof to constitute conclusive evidence of such approval. Promptly upon its execution, the Petition shall be filed in the official records of the City as required by Section 11-13-10, Utah Code Annotated 1953, as amended and shall be published and posted as required by law.

Section 2. Miscellaneous; Effective Date.

(a) All previous acts and ordinance in conflict with this ordinance or any part hereof are hereby repealed to the extent of such conflict.

(b) In case any provision in this ordinance shall be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired thereby.

(c) This ordinance shall take effect immediately upon its adoption, approval, publication and posting.

ADOPTED AND APPROVED this 1 day of Sept., 2004.

[SEAL]

MAYOR

Jeffrey Huber

ATTEST: CITY RECORDER



CERTIFICATE

STATE OF UTAH)

)

COUNTY OF UTAH)

I, the undersigned, do hereby certify that I am the duly qualified and acting City Recorder of the City of Salern. I further certify, according to the records of the City of Salern in my official position and upon my own knowledge and belief, that:

(1) the City of Salern ("City") is a duly organized and existing municipality under the provisions of the State of Utah; the legislative powers of the City are by law vested in a City Council composed of 5 members ("Council"); and neither the corporate existence of the City, nor the titles of the members of the Council or the officers of the City are being contested;

(2) the Council met in regular public session on September 1, 2004, (the "Meeting"), to consider and act upon the items listed on the Notice of Public Meeting attached as EXHIBIT A hereto (the "Notice"), which included, among other things, consideration of the Ordinance attached hereto (the "Ordinance");

(3) the Meeting was held at the regular meeting place of the Council within the boundaries of the City, as set forth in the Notice of Annual Meeting Schedule for 2004 which had been posted and provided in accordance with Section 52-4-6(1), Utah Code Annotated 1953, as amended;

(4) in accordance with the requirements of Section 52-4-6(2), Utah Code Annotated 1953, as amended, not less than 24 hours' public notice of the agenda, date, time and place of the Meeting was given by the posting of the Notice at the principal office of the Council and by providing a copy of the Notice to a newspaper of general circulation within the geographic jurisdiction of the City or to a local media correspondent;

(5) a quorum of the Council was present and acting throughout the Meeting; during the Meeting, the Ordinance was introduced in written form and, pursuant to

motion duly made and seconded, was adopted and approved by a vote of at least a majority of the members of the Council present and voting at the Meeting;

(6) The Ordinance was signed by the Mayor and was sealed and the seal attested by the undersigned as Secretary of the Council, and the Ordinance, its exhibits, and the minutes of the Meeting are recorded in the official records of the City.

(7) The Petition has been approved by an attorney duly authorized by the City as being in proper form and compatible with the laws of the State of Utah; and a true, correct and complete copy of the Petition has been filed in the office records of the City in compliance with law; and,

(8) All conditions, acts and things required by law to exist, to have happened and to be performed by the City preliminary to and in connection with the execution and delivery of the Petition exist, have happened and have been performed.

IN WITNESS WHEREOF, I have subscribed my official signature and impressed or imprinted hereon the official seal of the City this day, September 21, 2004.


CITY RECORDER

[SEAL]



**AN ORDINANCE AUTHORIZING THE EXECUTION AND DELIVERY
OF PETITION TO THE CENTRAL UTAH WATER CONSERVANCY DISTRICT
FOR ALLOTMENT OF WATER FOR MUNICIPAL AND INDUSTRIAL USE**

WHEREAS, City of Spanish Fork (the "City"), a member Municipality of the South Utah Valley Municipal Water Association, ("Association"), desires to Petition the Central Utah Water Conservancy District ("District"), individually and collectively through the Association, for an Allotment of Water for Municipal and Industrial Use to provide a needed water supply for the inhabitants of the City, in accordance with U. C. A. §17A-2-1414 of the Utah Water Conservancy District Act, as amended; and

WHEREAS, the City Council ("Council") has determined that it is necessary, desirable and in the best interests of the City to authorize the execution and delivery of the Petition by the City and the Association and the taking of other necessary actions in connection therewith;

NOW, THEREFORE, BE IT ORDAINED by the Council of City as follows:

Section 1. Execution, Delivery and Filing of the Petition. The Petition, in substantially the form attached hereto, is hereby authorized and approved and the Mayor is hereby authorized, empowered and directed to execute and deliver the Petition on behalf of the City, and that the City is bound thereby, and that the Association is hereby expressly authorized to execute the Petition on behalf of the Association and its Member Municipalities. The City Recorder is hereby authorized, empowered and directed to countersign and affix the corporate seal of the City to the Petition and to attest such seal, the execution thereof to constitute conclusive evidence of such approval. Promptly upon its execution, the Petition shall be filed in the official records of the City as required by Section 11-13-10, Utah Code Annotated 1953, as amended and shall be published and posted as required by law.

Section 2. Miscellaneous; Effective Date.

(a) All previous acts and ordinance in conflict with this ordinance or any part hereof are hereby repealed to the extent of such conflict.

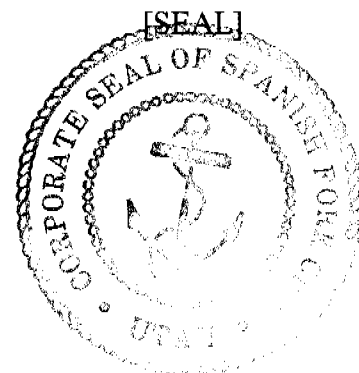
(b) In case any provision in this ordinance shall be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired thereby.

(c) This ordinance shall take effect immediately upon its adoption, approval, publication and posting.

ADOPTED AND APPROVED this 7 day of Sept, 2004.

Dale B. Boney
MAYOR

Rent R. Clark
ATTEST: CITY RECORDER



CERTIFICATE

STATE OF UTAH)
)

COUNTY OF UTAH)

I, the undersigned, do hereby certify that I am the duly qualified and acting City Recorder of the City of Spanish Fork. I further certify, according to the records of the City of Spanish Fork in my official position and upon my own knowledge and belief, that:

(1) the City of Spanish Fork ("City") is a duly organized and existing municipality under the provisions of the State of Utah; the legislative powers of the City are by law vested in a City Council composed of 5 members ("Council"); and neither the corporate existence of the City, nor the titles of the members of the Council or the officers of the City are being contested;

(2) the Council met in regular public session on Sept 7, 2004, (the "Meeting"), to consider and act upon the items listed on the Notice of Public Meeting attached as EXHIBIT A hereto (the "Notice"), which included, among other things, consideration of the Ordinance attached hereto (the "Ordinance");

(3) the Meeting was held at the regular meeting place of the Council within the boundaries of the City, as set forth in the Notice of Annual Meeting Schedule for 2004 which had been posted and provided in accordance with Section 52-4-6(1), Utah Code Annotated 1953, as amended;

(4) in accordance with the requirements of Section 52-4-6(2), Utah Code Annotated 1953, as amended, not less than 24 hours' public notice of the agenda, date, time and place of the Meeting was given by the posting of the Notice at the principal office of the Council and by providing a copy of the Notice to a newspaper of general circulation within the geographic jurisdiction of the City or to a local media correspondent;

(5) a quorum of the Council was present and acting throughout the Meeting; during the Meeting, the Ordinance was introduced in written form and, pursuant to

motion duly made and seconded, was adopted and approved by a vote of at least a majority of the members of the Council present and voting at the Meeting;

(6) The Ordinance was signed by the Mayor and was sealed and the seal attested by the undersigned as Secretary of the Council, and the Ordinance, its exhibits, and the minutes of the Meeting are recorded in the official records of the City.

(7) The Petition has been approved by an attorney duly authorized by the City as being in proper form and compatible with the laws of the State of Utah; and a true, correct and complete copy of the Petition has been filed in the office records of the City in compliance with law; and,

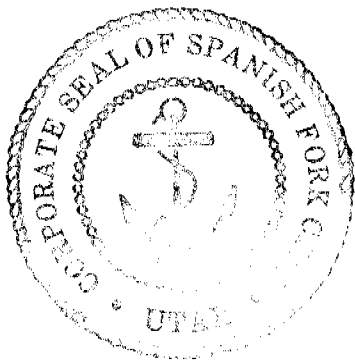
(8) All conditions, acts and things required by law to exist, to have happened and to be performed by the City preliminary to and in connection with the execution and delivery of the Petition exist, have happened and have been performed.

IN WITNESS WHEREOF, I have subscribed my official signature and impressed or imprinted hereon the official seal of the City this day, Sept. 21, 2004.

Kent R. Clark

CITY RECORDER

[SEAL]



**AN ORDINANCE AUTHORIZING THE EXECUTION AND DELIVERY
OF PETITION TO THE CENTRAL UTAH WATER CONSERVANCY DISTRICT
FOR ALLOTMENT OF WATER FOR MUNICIPAL AND INDUSTRIAL USE**

WHEREAS, City of Springville (the "City"), a member Municipality of the South Utah Valley Municipal Water Association, ("Association"), desires to Petition the Central Utah Water Conservancy District ("District"), individually and collectively through the Association, for an Allotment of Water for Municipal and Industrial Use to provide a needed water supply for the inhabitants of the City, in accordance with U. C. A. §17A-2-1414 of the Utah Water Conservancy District Act, as amended; and

WHEREAS, the City Council ("Council") has determined that it is necessary, desirable and in the best interests of the City to authorize the execution and delivery of the Petition by the City and the Association and the taking of other necessary actions in connection therewith;

NOW, THEREFORE, BE IT ORDAINED by the Council of City as follows:

Section 1. Execution, Delivery and Filing of the Petition. The Petition, in substantially the form attached hereto, is hereby authorized and approved and the Mayor is hereby authorized, empowered and directed to execute and deliver the Petition on behalf of the City, and that the City is bound thereby, and that the Association is hereby expressly authorized to execute the Petition on behalf of the Association and its Member Municipalities. The City Recorder is hereby authorized, empowered and directed to countersign and affix the corporate seal of the City to the Petition and to attest such seal, the execution thereof to constitute conclusive evidence of such approval. Promptly upon its execution, the Petition shall be filed in the official records of the City as required by Section 11-13-10, Utah Code Annotated 1953, as amended and shall be published and posted as required by law.

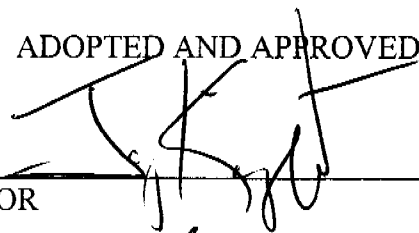
Section 2. Miscellaneous; Effective Date.

(a) All previous acts and ordinance in conflict with this ordinance or any part hereof are hereby repealed to the extent of such conflict.


(b) In case any provision in this ordinance shall be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired thereby.

(c) This ordinance shall take effect immediately upon its adoption, approval, publication and posting.

ADOPTED AND APPROVED this 7 day of Sept, 2004.



MAYOR



ATTEST: CITY RECORDER

[SEAL]



CERTIFICATE

STATE OF UTAH)

)

COUNTY OF UTAH)

I, the undersigned, do hereby certify that I am the duly qualified and acting City Recorder of the City of Springville. I further certify, according to the records of the City of Springville in my official position and upon my own knowledge and belief, that:

(1) the City of Springville ("City") is a duly organized and existing municipality under the provisions of the State of Utah; the legislative powers of the City are by law vested in a City Council composed of 5 members ("Council"); and neither the corporate existence of the City, nor the titles of the members of the Council or the officers of the City are being contested;

(2) the Council met in regular public session on Sept 7, 2004, (the "Meeting"), to consider and act upon the items listed on the Notice of Public Meeting attached as EXHIBIT A hereto (the "Notice"), which included, among other things, consideration of the Ordinance attached hereto (the "Ordinance");

(3) the Meeting was held at the regular meeting place of the Council within the boundaries of the City, as set forth in the Notice of Annual Meeting Schedule for 2004 which had been posted and provided in accordance with Section 52-4-6(1), Utah Code Annotated 1953, as amended;

(4) in accordance with the requirements of Section 52-4-6(2), Utah Code Annotated 1953, as amended, not less than 24 hours' public notice of the agenda, date, time and place of the Meeting was given by the posting of the Notice at the principal office of the Council and by providing a copy of the Notice to a newspaper of general circulation within the geographic jurisdiction of the City or to a local media correspondent;

(5) a quorum of the Council was present and acting throughout the Meeting; during the Meeting, the Ordinance was introduced in written form and, pursuant to

motion duly made and seconded, was adopted and approved by a vote of at least a majority of the members of the Council present and voting at the Meeting;

(6) The Ordinance was signed by the Mayor and was sealed and the seal attested by the undersigned as Secretary of the Council, and the Ordinance, its exhibits, and the minutes of the Meeting are recorded in the official records of the City.

(7) The Petition has been approved by an attorney duly authorized by the City as being in proper form and compatible with the laws of the State of Utah; and a true, correct and complete copy of the Petition has been filed in the office records of the City in compliance with law; and,

(8) All conditions, acts and things required by law to exist, to have happened and to be performed by the City preliminary to and in connection with the execution and delivery of the Petition exist, have happened and have been performed.

IN WITNESS WHEREOF, I have subscribed my official signature and impressed or imprinted hereon the official seal of the City this day, Sept 21, 2004.



[SEAL]

J. Evans

CITY RECORDER

**AN ORDINANCE AUTHORIZING THE EXECUTION AND DELIVERY
OF PETITION TO THE CENTRAL UTAH WATER CONSERVANCY DISTRICT
FOR ALLOTMENT OF WATER FOR MUNICIPAL AND INDUSTRIAL USE**

WHEREAS, City of Mapleton (the "City"), a member Municipality of the South Utah Valley Municipal Water Association, ("Association"), desires to Petition the Central Utah Water Conservancy District ("District"), individually and collectively through the Association, for an Allotment of Water for Municipal and Industrial Use to provide a needed water supply for the inhabitants of the City, in accordance with U. C. A. §17A-2-1414 of the Utah Water Conservancy District Act, as amended; and

WHEREAS, the City Council ("Council") has determined that it is necessary, desirable and in the best interests of the City to authorize the execution and delivery of the Petition by the City and the Association and the taking of other necessary actions in connection therewith;

NOW, THEREFORE, BE IT ORDAINED by the Council of City as follows:

Section 1. Execution, Delivery and Filing of the Petition. The Petition, in substantially the form attached hereto, is hereby authorized and approved and the Mayor is hereby authorized, empowered and directed to execute and deliver the Petition on behalf of the City, and that the City is bound thereby, and that the Association is hereby expressly authorized to execute the Petition on behalf of the Association and its Member Municipalities. The City Recorder is hereby authorized, empowered and directed to countersign and affix the corporate seal of the City to the Petition and to attest such seal, the execution thereof to constitute conclusive evidence of such approval. Promptly upon its execution, the Petition shall be filed in the official records of the City as required by Section 11-13-10, Utah Code Annotated 1953, as amended and shall be published and posted as required by law.

Section 2. Miscellaneous; Effective Date.

(a) All previous acts and ordinance in conflict with this ordinance or any part hereof are hereby repealed to the extent of such conflict.

(b) In case any provision in this ordinance shall be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired thereby.

(c) This ordinance shall take effect immediately upon its adoption, approval, publication and posting.

ADOPTED AND APPROVED this 14 day of Sept., 2004.

Klean S. Allan
MAYOR

Dobbie Watson
ATTEST: CITY RECORDER



CERTIFICATE

STATE OF UTAH)

)

COUNTY OF UTAH)

I, the undersigned, do hereby certify that I am the duly qualified and acting City Recorder of the City of Mapleton. I further certify, according to the records of the City of Mapleton in my official position and upon my own knowledge and belief, that:

(1) the City of Mapleton ("City") is a duly organized and existing municipality under the provisions of the State of Utah; the legislative powers of the City are by law vested in a City Council composed of 5 members ("Council"); and neither the corporate existence of the City, nor the titles of the members of the Council or the officers of the City are being contested;

(2) the Council met in regular public session on Sept. 7, 2004, (the "Meeting"), to consider and act upon the items listed on the Notice of Public Meeting attached as EXHIBIT A hereto (the "Notice"), which included, among other things, consideration of the Ordinance attached hereto (the "Ordinance");

(3) the Meeting was held at the regular meeting place of the Council within the boundaries of the City, as set forth in the Notice of Annual Meeting Schedule for 2004 which had been posted and provided in accordance with Section 52-4-6(1), Utah Code Annotated 1953, as amended;

(4) in accordance with the requirements of Section 52-4-6(2), Utah Code Annotated 1953, as amended, not less than 24 hours' public notice of the agenda, date, time and place of the Meeting was given by the posting of the Notice at the principal office of the Council and by providing a copy of the Notice to a newspaper of general circulation within the geographic jurisdiction of the City or to a local media correspondent;

(5) a quorum of the Council was present and acting throughout the Meeting; during the Meeting, the Ordinance was introduced in written form and, pursuant to

motion duly made and seconded, was adopted and approved by a vote of at least a majority of the members of the Council present and voting at the Meeting;

(6) The Ordinance was signed by the Mayor and was sealed and the seal attested by the undersigned as Secretary of the Council, and the Ordinance, its exhibits, and the minutes of the Meeting are recorded in the official records of the City.

(7) The Petition has been approved by an attorney duly authorized by the City as being in proper form and compatible with the laws of the State of Utah; and a true, correct and complete copy of the Petition has been filed in the office records of the City in compliance with law; and,

(8) All conditions, acts and things required by law to exist, to have happened and to be performed by the City preliminary to and in connection with the execution and delivery of the Petition exist, have happened and have been performed.

IN WITNESS WHEREOF, I have subscribed my official signature and impressed or imprinted hereon the official seal of the City this day, Sept. 23, 2004.

Debbie Walsen

CITY RECORDER

[SEAL]



**AN ORDINANCE AUTHORIZING THE EXECUTION AND DELIVERY
OF PETITION TO THE CENTRAL UTAH WATER CONSERVANCY DISTRICT
FOR ALLOTMENT OF WATER FOR MUNICIPAL AND INDUSTRIAL USE**

WHEREAS, City of Santaquin (the "City"), a member Municipality of the South Utah Valley Municipal Water Association, ("Association"), desires to Petition the Central Utah Water Conservancy District ("District"), individually and collectively through the Association, for an Allotment of Water for Municipal and Industrial Use to provide a needed water supply for the inhabitants of the City, in accordance with U. C. A. §17A-2-1414 of the Utah Water Conservancy District Act, as amended; and

WHEREAS, the City Council ("Council") has determined that it is necessary, desirable and in the best interests of the City to authorize the execution and delivery of the Petition by the City and the Association and the taking of other necessary actions in connection therewith;

NOW, THEREFORE, BE IT ORDAINED by the Council of City as follows:

Section 1. Execution, Delivery and Filing of the Petition. The Petition, in substantially the form attached hereto, is hereby authorized and approved and the Mayor is hereby authorized, empowered and directed to execute and deliver the Petition on behalf of the City, and that the City is bound thereby, and that the Association is hereby expressly authorized to execute the Petition on behalf of the Association and its Member Municipalities. The City Recorder is hereby authorized, empowered and directed to countersign and affix the corporate seal of the City to the Petition and to attest such seal, the execution thereof to constitute conclusive evidence of such approval. Promptly upon its execution, the Petition shall be filed in the official records of the City as required by Section 11-13-10, Utah Code Annotated 1953, as amended and shall be published and posted as required by law.

Section 2. Miscellaneous: Effective Date.

(a) All previous acts and ordinance in conflict with this ordinance or any part hereof are hereby repealed to the extent of such conflict.

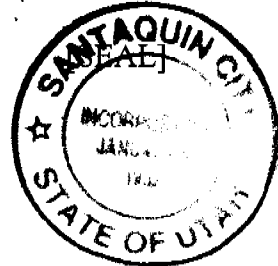
(b) In case any provision in this ordinance shall be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired thereby.

(c) This ordinance shall take effect immediately upon its adoption, approval, publication and posting.

ADOPTED AND APPROVED this 22 day of Sept, 2004.

A. Robert Merrill
MAYOR

Suzanne Smith
ATTEST: CITY RECORDER



CERTIFICATE

STATE OF UTAH)

)

COUNTY OF UTAH)

I, the undersigned, do hereby certify that I am the duly qualified and acting City ^{Manager} Recorder of the City of Santaquin. I further certify, according to the records of the City of Santaquin in my official position and upon my own knowledge and belief, that:

(1) the City of Santaquin ("City") is a duly organized and existing municipality under the provisions of the State of Utah; the legislative powers of the City are by law vested in a City Council composed of 5 members ("Council"); and neither the corporate existence of the City, nor the titles of the members of the Council or the officers of the City are being contested;

(2) the Council met in ^{Special} regular public session on Sept 23, 2004, (the "Meeting"), to consider and act upon the items listed on the Notice of Public Meeting attached as EXHIBIT A hereto (the "Notice"), which included, among other things, consideration of the Ordinance attached hereto (the "Ordinance");

(3) the Meeting was held at the regular meeting place of the Council within the boundaries of the City, as set forth in the Notice of Annual Meeting Schedule for 2004 which had been posted and provided in accordance with Section 52-4-6(1), Utah Code Annotated 1953, as amended;

(4) in accordance with the requirements of Section 52-4-6(2), Utah Code Annotated 1953, as amended, not less than 24 hours' public notice of the agenda, date, time and place of the Meeting was given by the posting of the Notice at the principal office of the Council and by providing a copy of the Notice to a newspaper of general circulation within the geographic jurisdiction of the City or to a local media correspondent;

(5) a quorum of the Council was present and acting throughout the Meeting; during the Meeting, the Ordinance was introduced in written form and, pursuant to

motion duly made and seconded, was adopted and approved by a vote of at least a majority of the members of the Council present and voting at the Meeting;

(6) The Ordinance was signed by the Mayor and was sealed and the seal attested by the undersigned as Secretary of the Council, and the Ordinance, its exhibits, and the minutes of the Meeting are recorded in the official records of the City.

(7) The Petition has been approved by an attorney duly authorized by the City as being in proper form and compatible with the laws of the State of Utah; and a true, correct and complete copy of the Petition has been filed in the office records of the City in compliance with law; and,

(8) All conditions, acts and things required by law to exist, to have happened and to be performed by the City preliminary to and in connection with the execution and delivery of the Petition exist, have happened and have been performed.

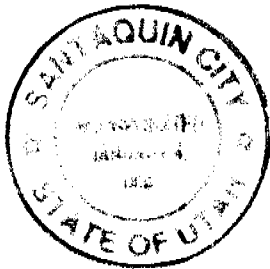
IN WITNESS WHEREOF, I have subscribed my official signature and impressed or imprinted hereon the official seal of the City this day, Sept 23, 2004.



CITY RECORDER

City Manager

[SEAL]



**AN ORDINANCE AUTHORIZING THE EXECUTION AND DELIVERY
OF PETITION TO THE CENTRAL UTAH WATER CONSERVANCY DISTRICT
FOR ALLOTMENT OF WATER FOR MUNICIPAL AND INDUSTRIAL USE**

WHEREAS, City of Genola (the "City"), a member Municipality of the South Utah Valley Municipal Water Association, ("Association"), desires to Petition the Central Utah Water Conservancy District ("District"), individually and collectively through the Association, for an Allotment of Water for Municipal and Industrial Use to provide a needed water supply for the inhabitants of the City, in accordance with U. C. A. §17A-2-1414 of the Utah Water Conservancy District Act, as amended; and

WHEREAS, the City Council ("Council") has determined that it is necessary, desirable and in the best interests of the City to authorize the execution and delivery of the Petition by the City and the Association and the taking of other necessary actions in connection therewith;

NOW, THEREFORE, BE IT ORDAINED by the Council of City as follows:

Section 1. Execution, Delivery and Filing of the Petition. The Petition, in substantially the form attached hereto, is hereby authorized and approved and the Mayor is hereby authorized, empowered and directed to execute and deliver the Petition on behalf of the City, and that the City is bound thereby, and that the Association is hereby expressly authorized to execute the Petition on behalf of the Association and its Member Municipalities. The City Recorder is hereby authorized, empowered and directed to countersign and affix the corporate seal of the City to the Petition and to attest such seal, the execution thereof to constitute conclusive evidence of such approval. Promptly upon its execution, the Petition shall be filed in the official records of the City as required by Section 11-13-10, Utah Code Annotated 1953, as amended and shall be published and posted as required by law.

Section 2. Miscellaneous; Effective Date.

(a) All previous acts and ordinance in conflict with this ordinance or any part hereof are hereby repealed to the extent of such conflict.

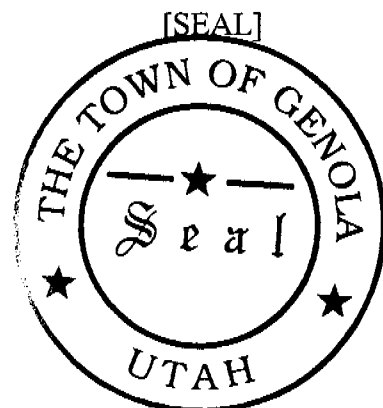
(b) In case any provision in this ordinance shall be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired thereby.

(c) This ordinance shall take effect immediately upon its adoption, approval, publication and posting.

ADOPTED AND APPROVED this 22nd day of Sept., 2004.

W. Neil Brown
MAYOR

Craci Bogdan
ATTEST: CITY RECORDER



CERTIFICATE

STATE OF UTAH)

)

COUNTY OF UTAH)

I, the undersigned, do hereby certify that I am the duly qualified and acting City Recorder of the City of Genola. I further certify, according to the records of the City of Genola in my official position and upon my own knowledge and belief, that:

(1) the City of Genola ("City") is a duly organized and existing municipality under the provisions of the State of Utah; the legislative powers of the City are by law vested in a City Council composed of four members ("Council"); and neither the corporate existence of the City, nor the titles of the members of the Council or the officers of the City are being contested;

(2) the Council met in regular public session on Sept 22, 2004, (the "Meeting"), to consider and act upon the items listed on the Notice of Public Meeting attached as EXHIBIT A hereto (the "Notice"), which included, among other things, consideration of the Ordinance attached hereto (the "Ordinance");

(3) the Meeting was held at the regular meeting place of the Council within the boundaries of the City, as set forth in the Notice of Annual Meeting Schedule for 2004 which had been posted and provided in accordance with Section 52-4-6(1), Utah Code Annotated 1953, as amended;

(4) in accordance with the requirements of Section 52-4-6(2), Utah Code Annotated 1953, as amended, not less than 24 hours' public notice of the agenda, date, time and place of the Meeting was given by the posting of the Notice at the principal office of the Council and by providing a copy of the Notice to a newspaper of general circulation within the geographic jurisdiction of the City or to a local media correspondent;

(5) a quorum of the Council was present and acting throughout the Meeting; during the Meeting, the Ordinance was introduced in written form and, pursuant to

motion duly made and seconded, was adopted and approved by a vote of at least a majority of the members of the Council present and voting at the Meeting;

(6) The Ordinance was signed by the Mayor and was sealed and the seal attested by the undersigned as Secretary of the Council, and the Ordinance, its exhibits, and the minutes of the Meeting are recorded in the official records of the City.

(7) The Petition has been approved by an attorney duly authorized by the City as being in proper form and compatible with the laws of the State of Utah; and a true, correct and complete copy of the Petition has been filed in the office records of the City in compliance with law; and,

(8) All conditions, acts and things required by law to exist, to have happened and to be performed by the City preliminary to and in connection with the execution and delivery of the Petition exist, have happened and have been performed.

IN WITNESS WHEREOF, I have subscribed my official signature and impressed or imprinted hereon the official seal of the City this day, Sept - 24, 2004.


CITY RECORDER



APPENDIX L

CONCEPTUAL LEVEL COST ESTIMATES

**Mt Nebo Water Agency
Regional Water Supply Study
Proposed Infrastructure Engineer's Opinion of Probable Construction Costs**

Description	Unit	Quantity	Unit Cost	Total Cost
Project 1 - Spanish Fork/Salem Low Pressure Connection				
Ex, Backfill, and Compaction	LF	1600	\$ 11.05	\$ 17,680.00
Shoring	WK	4	\$ 345.00	\$ 1,380.00
Imported Bedding & Pipe Zone Sand	CY	444	\$ 33.50	\$ 14,888.89
12-inch Diameter PVC C900	LF	1600	\$ 32.74	\$ 52,377.60
12-inch Long Sleeve MJ	EA	2	\$ 617.00	\$ 1,234.00
12-inch Joint Restraint	EA	4	\$ 360.78	\$ 1,443.10
3/4" x 8-inch deep UBC	SY	1244	\$ 10.00	\$ 12,444.44
4" Thick AC Pavement	SY	1244	\$ 62.00	\$ 77,155.56
Meter Vault Excavation	CY	120	\$ 10.75	\$ 1,293.19
3/4" by 12" thick UBC under Vault	CY	5	\$ 35.00	\$ 181.48
8'x12'x8' high Precast Concrete Vault	LS	1	\$ 8,750.00	\$ 8,750.00
12"x8" Reducer MJ	EA	2	\$ 530.50	\$ 1,061.00
12-inch Joint Restraint	EA	2	\$ 360.78	\$ 721.55
8-inch Joint Restraint	EA	2	\$ 210.60	\$ 421.20
8-inch Butterfly Valve FlgxFlg	EA	2	\$ 1,949.00	\$ 3,898.00
8-inch Dismantling Joint	EA	1	\$ 1,342.00	\$ 1,342.00
8-inch Mag Meter	EA	1	\$ 4,482.00	\$ 4,482.00
8" x 36" long DI Spool Flg xFlg	EA	2	\$ 894.10	\$ 1,788.20
8" x 36" long DI Spool Flg xPE	EA	2	\$ 682.90	\$ 1,365.80
Backfill and Compaction	CY	92	\$ 3.50	\$ 321.48
SCADA and Electrical	LS	1	\$ 35,000.00	\$ 35,000.00
SWPPP	LS	1	\$ 2,500.00	\$ 2,500.00
Traffic Control	LS	1	\$ 10,000.00	\$ 10,000.00
Materials Testing	LS	1	\$ 5,000.00	\$ 5,000.00
Mobilization	LS	1	\$ 28,000.00	\$ 28,000.00
			Sub-Total	\$ 284,729.49
			Contingency @ 35%	\$ 99,655.32
			Sub-Total Constuction	\$ 384,384.81
			Contractor Bonds & Insurance @ 2.5%	\$ 9,609.62
			Contractor OH & Profit @ 20%	\$ 76,876.96
			TOTAL CONSTRUCTION	\$ 470,871.39
			Engineering, Legal, and Admin @18%	\$ 84,756.85
			TOTAL CONSTRUCTION AND ENGINEERING	\$ 555,628.24

The OPCC is based on limited design and engineering information and therefore has a fairly wide accuracy range. Costs are based on information from several sources including "Heavy Construction Costs with RSMeans Data - 2017", budget level quotes from material and equipment suppliers, and bids from recent similar projects. Costs for labor, material, and equipment will vary based on market conditions, competitive bidding environments, financial conditions, and other factors. The OPCC represents a "snapshot in time" and will vary over time.

Mt Nebo Water Agency
Regional Water Supply Study
Proposed Infrastructure Engineer's Opinion of Probable Construction Costs

Description	Unit	Quantity	Unit Cost	Total Cost
Project 2 - Salem to Payson North Connection				
Ex, Backfill, and Compaction	LF	250	\$ 11.05	\$ 2,762.50
Shoring	WK	2	\$ 345.00	\$ 690.00
Imported Bedding & Pipe Zone Sand	CY	69	\$ 33.50	\$ 2,326.39
12-inch Diameter PVC C900	LF	250	\$ 32.74	\$ 8,184.00
12-inch Long Sleeve MJ	EA	2	\$ 617.00	\$ 1,234.00
12-inch Joint Restraint	EA	4	\$ 360.78	\$ 1,443.10
3/4" x 8-inch deep UBC	SY	194	\$ 10.00	\$ 1,944.44
4" Thick AC Pavement	SY	194	\$ 62.00	\$ 12,055.56
Meter Vault Excavation	CY	120	\$ 10.75	\$ 1,293.19
3/4" by 12" thick UBC under Vault	CY	5	\$ 35.00	\$ 181.48
8'x12'x8' high Precast Concrete Vault	LS	1	\$ 8,750.00	\$ 8,750.00
12"x8" Reducer MJ	EA	2	\$ 530.50	\$ 1,061.00
12-inch Joint Restraint	EA	2	\$ 360.78	\$ 721.55
8-inch Joint Restraint	EA	2	\$ 210.60	\$ 421.20
8-inch Butterfly Valve FlgxFlg	EA	2	\$ 1,949.00	\$ 3,898.00
8-inch Dismantling Joint	EA	1	\$ 1,342.00	\$ 1,342.00
8-inch Mag Meter	EA	1	\$ 4,482.00	\$ 4,482.00
8" x 36" long DI Spool Flg xFlg	EA	2	\$ 894.10	\$ 1,788.20
8" x 36" long DI Spool Flg xPE	EA	2	\$ 682.90	\$ 1,365.80
Backfill and Compaction	CY	92	\$ 3.50	\$ 321.48
SCADA and Electrical	LS	1	\$ 35,000.00	\$ 35,000.00
SWPPP	LS	1	\$ 2,500.00	\$ 2,500.00
Traffic Control	LS	1	\$ 5,000.00	\$ 5,000.00
Materials Testing	LS	1	\$ 3,000.00	\$ 3,000.00
Mobilization	LS	1	\$ 15,000.00	\$ 15,000.00
			Sub-Total	\$ 116,765.89
			Contingency @ 35%	\$ 40,868.06
			Sub-Total Constuction	\$ 157,633.95
			Contractor Bonds & Insurance @ 2.5%	\$ 3,940.85
			Contractor OH & Profit @ 20%	\$ 31,526.79
			TOTAL CONSTRUCTION	\$ 193,101.59
			Engineering, Legal, and Admin @18%	\$ 34,758.29
			TOTAL CONSTRUCTION AND ENGINEERING	\$ 227,859.87

The OPCC is based on limited design and engineering information and therefore has a fairly wide accuracy range. Costs are based on information from several sources including "Heavy Construction Costs with RSMeans Data - 2017", budget level quotes from material and equipment suppliers, and bids from recent similar projects. Costs for labor, material, and equipment will vary based on market conditions, competitive bidding environments, financial conditions, and other factors. The OPCC represents a "snapshot in time" and will vary over time.

**Mt Nebo Water Agency
Regional Water Supply Study
Proposed Infrastructure Engineer's Opinion of Probable Construction Costs**

Description	Unit	Quantity	Unit Cost	Total Cost
Project 3 - Salem to Payson Connection				
Ex, Backfill, and Compaction	LF	3600	\$ 11.05	\$ 39,780.00
Shoring	WK	8	\$ 345.00	\$ 2,760.00
Imported Bedding & Pipe Zone Sand	CY	1000	\$ 33.50	\$ 33,500.00
12-inch Diameter PVC C900	LF	3600	\$ 32.74	\$ 117,849.60
12-inch Long Sleeve MJ	EA	2	\$ 617.00	\$ 1,234.00
12-inch Joint Restraint	EA	4	\$ 360.78	\$ 1,443.10
3/4" x 8-inch deep UBC	SY	2800	\$ 10.00	\$ 28,000.00
4" Thick AC Pavement	SY	2800	\$ 62.00	\$ 173,600.00
Meter Vault Excavation	CY	120	\$ 10.75	\$ 1,293.19
3/4" by 12" thick UBC under Vault	CY	5	\$ 35.00	\$ 181.48
8'x12'x8' high Precast Concrete Vault	LS	1	\$ 8,750.00	\$ 8,750.00
12"x8" Reducer MJ	EA	2	\$ 530.50	\$ 1,061.00
12-inch Joint Restraint	EA	2	\$ 360.78	\$ 721.55
8-inch Joint Restraint	EA	2	\$ 210.60	\$ 421.20
8-inch Butterfly Valve FlgxFlg	EA	2	\$ 1,949.00	\$ 3,898.00
8-inch Dismantling Joint	EA	1	\$ 1,342.00	\$ 1,342.00
8-inch Mag Meter	EA	1	\$ 4,482.00	\$ 4,482.00
8" x 36" long DI Spool Flg xFlg	EA	2	\$ 894.10	\$ 1,788.20
8" x 36" long DI Spool Flg xPE	EA	2	\$ 682.90	\$ 1,365.80
Backfill and Compaction	CY	92	\$ 3.50	\$ 321.48
SCADA and Electrical	LS	1	\$ 35,000.00	\$ 35,000.00
SWPPP	LS	1	\$ 4,000.00	\$ 4,000.00
Traffic Control	LS	1	\$ 22,500.00	\$ 22,500.00
Materials Testing	LS	1	\$ 7,500.00	\$ 7,500.00
Mobilization	LS	1	\$ 52,000.00	\$ 52,000.00
			Sub-Total	\$ 544,792.60
			Contingency @ 35%	\$ 190,677.41
			Sub-Total Constuction	\$ 735,470.01
			Contractor Bonds & Insurance @ 2.5%	\$ 18,386.75
			Contractor OH & Profit @ 20%	\$ 147,094.00
			TOTAL CONSTRUCTION	\$ 900,950.76
			Engineering, Legal, and Admin @18%	\$ 162,171.14
			TOTAL CONSTRUCTION AND ENGINEERING	\$ 1,063,121.90

The OPCC is based on limited design and engineering information and therefore has a fairly wide accuracy range. Costs are based on information from several sources including "Heavy Construction Costs with RSMeans Data - 2017", budget level quotes from material and equipment suppliers, and bids from recent similar projects. Costs for labor, material, and equipment will vary based on market conditions, competitive bidding environments, financial conditions, and other factors. The OPCC represents a "snapshot in time" and will vary over time.

**Mt Nebo Water Agency
Regional Water Supply Study
Proposed Infrastructure Engineer's Opinion of Probable Construction Costs**

Description	Unit	Quantity	Unit Cost	Total Cost
Project 4 - Salem to Elk Ridge Connection				
Ex, Backfill, and Compaction	LF	250	\$ 11.05	\$ 2,762.50
Shoring	WK	2	\$ 345.00	\$ 690.00
Imported Bedding & Pipe Zone Sand	CY	69	\$ 33.50	\$ 2,326.39
12-inch Diameter PVC C900	LF	250	\$ 32.74	\$ 8,184.00
12-inch Long Sleeve MJ	EA	2	\$ 617.00	\$ 1,234.00
12-inch Joint Restraint	EA	4	\$ 360.78	\$ 1,443.10
3/4" x 8-inch deep UBC	SY	194	\$ 10.00	\$ 1,944.44
4" Thick AC Pavement	SY	194	\$ 62.00	\$ 12,055.56
Meter Vault Excavation	CY	120	\$ 10.75	\$ 1,293.19
3/4" by 12" thick UBC under Vault	CY	5	\$ 35.00	\$ 181.48
8'x12'x8' high Precast Concrete Vault	LS	1	\$ 8,750.00	\$ 8,750.00
12"x8" Reducer MJ	EA	2	\$ 530.50	\$ 1,061.00
12-inch Joint Restraint	EA	2	\$ 360.78	\$ 721.55
8-inch Joint Restraint	EA	2	\$ 210.60	\$ 421.20
8-inch Butterfly Valve FlgxFlg	EA	2	\$ 1,949.00	\$ 3,898.00
8-inch Dismantling Joint	EA	1	\$ 1,342.00	\$ 1,342.00
8-inch Mag Meter	EA	1	\$ 4,482.00	\$ 4,482.00
8" x 36" long DI Spool Flg xFlg	EA	2	\$ 894.10	\$ 1,788.20
8" x 36" long DI Spool Flg xPE	EA	2	\$ 682.90	\$ 1,365.80
Backfill and Compaction	CY	92	\$ 3.50	\$ 321.48
SCADA and Electrical	LS	1	\$ 35,000.00	\$ 35,000.00
SWPPP	LS	1	\$ 2,500.00	\$ 2,500.00
Traffic Control	LS	1	\$ 5,000.00	\$ 5,000.00
Materials Testing	LS	1	\$ 3,000.00	\$ 3,000.00
Mobilization	LS	1	\$ 15,000.00	\$ 15,000.00
			Sub-Total	\$ 116,765.89
			Contingency @ 35%	\$ 40,868.06
			Sub-Total Constuction	\$ 157,633.95
			Contractor Bonds & Insurance @ 2.5%	\$ 3,940.85
			Contractor OH & Profit @ 20%	\$ 31,526.79
			TOTAL CONSTRUCTION	\$ 193,101.59
			Engineering, Legal, and Admin @18%	\$ 34,758.29
			TOTAL CONSTRUCTION AND ENGINEERING	\$ 227,859.87

The OPCC is based on limited design and engineering information and therefore has a fairly wide accuracy range. Costs are based on information from several sources including "Heavy Construction Costs with RSMeans Data - 2017", budget level quotes from material and equipment suppliers, and bids from recent similar projects. Costs for labor, material, and equipment will vary based on market conditions, competitive bidding environments, financial conditions, and other factors. The OPCC represents a "snapshot in time" and will vary over time.

**Mt Nebo Water Agency
Regional Water Supply Study
Proposed Infrastructure Engineer's Opinion of Probable Construction Costs**

Description	Unit	Quantity	Unit Cost	Total Cost
Project 5 - Woodland Hills to Elk Ridge Connection				
Ex, Backfill, and Compaction	LF	800	\$ 11.05	\$ 8,840.00
Shoring	WK	2	\$ 345.00	\$ 690.00
Imported Bedding & Pipe Zone Sand	CY	198	\$ 33.50	\$ 6,625.56
8-inch Diameter PVC C900	LF	800	\$ 17.35	\$ 13,880.00
8-inch Long Sleeve MJ	EA	2	\$ 617.00	\$ 1,234.00
8-inch Joint Restraint	EA	4	\$ 323.10	\$ 1,292.40
3/4" x 8-inch deep UBC	SY	593	\$ 10.00	\$ 5,928.89
4" Thick AC Pavement	SY	593	\$ 62.00	\$ 36,759.11
Meter Vault Excavation	CY	111	\$ 10.75	\$ 1,197.63
3/4" by 12" thick UBC under Vault	CY	3	\$ 35.00	\$ 103.70
8'x6'x8' high Precast Concrete Vault	LS	1	\$ 6,550.00	\$ 6,550.00
8"x4" Reducer MJ	EA	2	\$ 325.60	\$ 651.20
4-inch Joint Restraint	EA	2	\$ 129.68	\$ 259.35
8-inch Joint Restraint	EA	2	\$ 210.60	\$ 421.20
4-inch Butterfly Valve FlgxFlg	EA	2	\$ 1,678.40	\$ 3,356.80
4-inch Dismantling Joint	EA	1	\$ 920.70	\$ 920.70
4-inch Mag Meter	EA	1	\$ 4,064.00	\$ 4,064.00
4" x 24" long DI Spool Flg xFlg	EA	2	\$ 524.50	\$ 1,049.00
4" x 24" long DI Spool Flg xPE	EA	2	\$ 416.70	\$ 833.40
Backfill and Compaction	CY	97	\$ 3.50	\$ 340.15
SCADA and Electrical	LS	1	\$ 30,000.00	\$ 30,000.00
SWPPP	LS	1	\$ 2,500.00	\$ 2,500.00
Traffic Control	LS	1	\$ 5,000.00	\$ 5,000.00
Materials Testing	LS	1	\$ 3,000.00	\$ 3,000.00
Mobilization	LS	1	\$ 15,000.00	\$ 15,000.00
			Sub-Total	\$ 150,497.09
			Contingency @ 35%	\$ 52,673.98
			Sub-Total Construction	\$ 203,171.07
			Contractor Bonds & Insurance @ 2.5%	\$ 5,079.28
			Contractor OH & Profit @ 20%	\$ 40,634.21
			TOTAL CONSTRUCTION	\$ 248,884.56
			Engineering, Legal, and Admin @18%	\$ 44,799.22
			TOTAL CONSTRUCTION AND ENGINEERING	\$ 293,683.78

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**Mt Nebo Water Agency
Regional Water Supply Study
Proposed Infrastructure Engineer's Opinion of Probable Construction Costs**

Description	Unit	Quantity	Unit Cost	Total Cost
Project 6 - Payson to Genola Connection				
Ex, Backfill, and Compaction	LF	13400	\$ 11.05	\$ 148,070.00
Shoring	WK	28	\$ 345.00	\$ 9,660.00
Imported Bedding & Pipe Zone Sand	CY	3722	\$ 33.50	\$ 124,694.44
12-inch Diameter PVC C900	LF	13400	\$ 32.74	\$ 438,662.40
12-inch Long Sleeve MJ	EA	2	\$ 617.00	\$ 1,234.00
12-inch Joint Restraint	EA	4	\$ 360.78	\$ 1,443.10
3/4" x 8-inch deep UBC	SY	10422	\$ 10.00	\$ 104,222.22
4" Thick AC Pavement	SY	10422	\$ 62.00	\$ 646,177.78
HDD at 400 North	LF	50	\$ 500.00	\$ 25,000.00
HDD at 1175 East & SR141	LF	50	\$ 500.00	\$ 25,000.00
Meter Vault Excavation	CY	120	\$ 10.75	\$ 1,293.19
3/4" by 12" thick UBC under Vault	CY	5	\$ 35.00	\$ 181.48
8'x12'x8' high Precast Concrete Vault	LS	1	\$ 8,750.00	\$ 8,750.00
12"x8" Reducer MJ	EA	2	\$ 530.50	\$ 1,061.00
12-inch Joint Restraint	EA	2	\$ 360.78	\$ 721.55
8-inch Joint Restraint	EA	2	\$ 210.60	\$ 421.20
8-inch Butterfly Valve FlgxFlg	EA	2	\$ 1,949.00	\$ 3,898.00
8-inch Dismantling Joint	EA	1	\$ 1,342.00	\$ 1,342.00
8-inch Mag Meter	EA	1	\$ 4,482.00	\$ 4,482.00
8" x 36" long DI Spool Flg xFlg	EA	2	\$ 894.10	\$ 1,788.20
8" x 36" long DI Spool Flg xPE	EA	2	\$ 682.90	\$ 1,365.80
Backfill and Compaction	CY	92	\$ 3.50	\$ 321.48
SCADA and Electrical	LS	1	\$ 35,000.00	\$ 35,000.00
SWPPP	LS	1	\$ 4,000.00	\$ 4,000.00
Traffic Control	LS	1	\$ 35,000.00	\$ 35,000.00
Materials Testing	LS	1	\$ 7,500.00	\$ 7,500.00
Mobilization	LS	1	\$ 175,000.00	\$ 175,000.00
			Sub-Total	\$ 1,806,289.84
			Contingency @ 35%	\$ 632,201.44
			Sub-Total Constuction	\$ 2,438,491.29
			Contractor Bonds & Insurance @ 2.5%	\$ 60,962.28
			Contractor OH & Profit @ 20%	\$ 487,698.26
			TOTAL CONSTRUCTION	\$ 2,987,151.83
			Engineering, Legal, and Admin @18%	\$ 537,687.33
			TOTAL CONSTRUCTION AND ENGINEERING	\$ 3,524,839.16

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**Mt Nebo Water Agency
Regional Water Supply Study
Proposed Infrastructure Engineer's Opinion of Probable Construction Costs**

Description	Unit	Quantity	Unit Cost	Total Cost
Project 7 - Genola to Goshen Connection				
Ex, Backfill, and Compaction	LF	20100	\$ 11.05	\$ 222,105.00
Shoring	WK	40	\$ 345.00	\$ 13,800.00
Imported Bedding & Pipe Zone Sand	CY	5583	\$ 33.50	\$ 187,041.67
6-inch Diameter PVC C905	LF	20100	\$ 10.00	\$ 201,000.00
6-inch Long Sleeve MJ	EA	2	\$ 291.10	\$ 582.20
6-inch Joint Restraint	EA	4	\$ 190.00	\$ 760.00
3/4" x 8-inch deep UBC	SY	15633	\$ 10.00	\$ 156,333.33
4" Thick AC Pavement	SY	15633	\$ 62.00	\$ 969,266.67
HDD at 400 West	LF	50	\$ 500.00	\$ 25,000.00
HDD East of 100 East	LF	50	\$ 500.00	\$ 25,000.00
Minor Creek/Culvert Crossings	EA	3	\$ 2,500.00	\$ 7,500.00
Meter Vault Excavation	CY	120	\$ 10.75	\$ 1,293.19
3/4" by 12" thick UBC under Vault	CY	5	\$ 35.00	\$ 181.48
8'x12'x8' high Precast Concrete Vault	LS	1	\$ 8,750.00	\$ 8,750.00
6"x4" Reducer MJ	EA	2	\$ 246.00	\$ 492.00
4-inch Joint Restraint	EA	2	\$ 172.68	\$ 345.35
6-inch Joint Restraint	EA	2	\$ 190.00	\$ 380.00
4-inch Butterfly Valve FlgxFlg	EA	2	\$ 1,678.40	\$ 3,356.80
4-inch Dismantling Joint	EA	1	\$ 943.50	\$ 943.50
4-inch Mag Meter	EA	1	\$ 3,250.00	\$ 3,250.00
4" x 48" long DI Spool Flg xFlg	EA	2	\$ 638.90	\$ 1,277.80
4" x 48" long DI Spool Flg xPE	EA	2	\$ 531.10	\$ 1,062.20
Backfill and Compaction	CY	92	\$ 3.50	\$ 321.48
SCADA and Electrical	LS	1	\$ 35,000.00	\$ 35,000.00
SWPPP	LS	1	\$ 5,000.00	\$ 5,000.00
Traffic Control	LS	1	\$ 50,000.00	\$ 50,000.00
Materials Testing	LS	1	\$ 10,000.00	\$ 10,000.00
Mobilization	LS	1	\$ 200,000.00	\$ 200,000.00
			Sub-Total	\$ 2,130,042.66
			Contingency @ 35%	\$ 745,514.93
			Sub-Total Constuction	\$ 2,875,557.60
			Contractor Bonds & Insurance @ 2.5%	\$ 71,888.94
			Contractor OH & Profit @ 20%	\$ 575,111.52
			TOTAL CONSTRUCTION	\$ 3,522,558.06
			Engineering, Legal, and Admin @18%	\$ 634,060.45
			TOTAL CONSTRUCTION AND ENGINEERING	\$ 4,156,618.51

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**Mt Nebo Water Agency
Regional Water Supply Study
Proposed Infrastructure Engineer's Opinion of Probable Construction Costs**

Description	Unit	Quantity	Unit Cost	Total Cost
Project 8 - Spanish Fork/Salem Intermediate Pressure Connection				
Ex, Backfill, and Compaction	LF	500	\$ 11.05	\$ 5,525.00
Shoring	WK	2	\$ 345.00	\$ 690.00
Imported Bedding & Pipe Zone Sand	CY	139	\$ 33.50	\$ 4,652.78
12-inch Diameter PVC C900	LF	500	\$ 32.74	\$ 16,368.00
12-inch Long Sleeve MJ	EA	2	\$ 617.00	\$ 1,234.00
12-inch Joint Restraint	EA	4	\$ 360.78	\$ 1,443.10
3/4" x 8-inch deep UBC	SY	389	\$ 10.00	\$ 3,888.89
4" Thick AC Pavement	SY	389	\$ 62.00	\$ 24,111.11
Meter Vault Excavation	CY	120	\$ 10.75	\$ 1,293.19
3/4" by 12" thick UBC under Vault	CY	5	\$ 35.00	\$ 181.48
8'x12'x8' high Precast Concrete Vault	LS	1	\$ 8,750.00	\$ 8,750.00
12"x8" Reducer MJ	EA	2	\$ 530.50	\$ 1,061.00
12-inch Joint Restraint	EA	2	\$ 360.78	\$ 721.55
8-inch Joint Restraint	EA	2	\$ 210.60	\$ 421.20
8-inch Butterfly Valve FlgxFlg	EA	2	\$ 1,949.00	\$ 3,898.00
8-inch Dismantling Joint	EA	1	\$ 1,342.00	\$ 1,342.00
8-inch Mag Meter	EA	1	\$ 4,482.00	\$ 4,482.00
8" x 36" long DI Spool Flg xFlg	EA	2	\$ 894.10	\$ 1,788.20
8" x 36" long DI Spool Flg xPE	EA	2	\$ 682.90	\$ 1,365.80
Backfill and Compaction	CY	92	\$ 3.50	\$ 321.48
SCADA and Electrical	LS	1	\$ 35,000.00	\$ 35,000.00
SWPPP	LS	1	\$ 2,500.00	\$ 2,500.00
Traffic Control	LS	1	\$ 5,000.00	\$ 5,000.00
Materials Testing	LS	1	\$ 3,000.00	\$ 3,000.00
Mobilization	LS	1	\$ 15,000.00	\$ 15,000.00
			Sub-Total	\$ 144,038.78
			Contingency @ 35%	\$ 50,413.57
			Sub-Total Constuction	\$ 194,452.35
			Contractor Bonds & Insurance @ 2.5%	\$ 4,861.31
			Contractor OH & Profit @ 20%	\$ 38,890.47
			TOTAL CONSTRUCTION	\$ 238,204.13
			Engineering, Legal, and Admin @18%	\$ 42,876.74
			TOTAL CONSTRUCTION AND ENGINEERING	\$ 281,080.87

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Mt Nebo Water Agency
Regional Water Supply Study
Proposed Infrastructure Engineer's Opinion of Probable Construction Costs

Description	Unit	Quantity	Unit Cost	Total Cost
Project - Payson to Santaquin Connection				
Ex, Backfill, and Compaction	LF	500	\$ 11.05	\$ 5,525.00
Shoring	WK	2	\$ 345.00	\$ 690.00
Imported Bedding & Pipe Zone Sand	CY	139	\$ 33.50	\$ 4,652.78
10-inch Diameter PVC C900	LF	500	\$ 24.30	\$ 12,148.50
10-inch Long Sleeve MJ	EA	2	\$ 562.40	\$ 1,124.80
10-inch Joint Restraint	EA	4	\$ 290.10	\$ 1,160.40
3/4" x 8-inch deep UBC	SY	389	\$ 10.00	\$ 3,888.89
4" Thick AC Pavement	SY	389	\$ 62.00	\$ 24,111.11
Meter Vault Excavation	CY	120	\$ 10.75	\$ 1,293.19
3/4" by 12" thick UBC under Vault	CY	5	\$ 35.00	\$ 181.48
8'x12'x8' high Precast Concrete Vault	LS	1	\$ 8,750.00	\$ 8,750.00
10"x6" Reducer MJ	EA	2	\$ 428.00	\$ 856.00
10-inch Joint Restraint	EA	2	\$ 290.10	\$ 580.20
6-inch Joint Restraint	EA	2	\$ 171.00	\$ 342.00
6-inch Butterfly Valve FlgxFlg	EA	2	\$ 1,714.70	\$ 3,429.40
6-inch Dismantling Joint	EA	1	\$ 1,166.00	\$ 1,166.00
6-inch Mag Meter	EA	1	\$ 3,140.00	\$ 3,140.00
6" x 36" long DI Spool Flg xFlg	EA	2	\$ 680.70	\$ 1,361.40
6" x 36" long DI Spool Flg xPE	EA	2	\$ 539.90	\$ 1,079.80
Backfill and Compaction	CY	92	\$ 3.50	\$ 321.48
SCADA and Electrical	LS	1	\$ 35,000.00	\$ 35,000.00
SWPPP	LS	1	\$ 2,500.00	\$ 2,500.00
Traffic Control	LS	1	\$ 5,000.00	\$ 5,000.00
Materials Testing	LS	1	\$ 3,000.00	\$ 3,000.00
Mobilization	LS	1	\$ 15,000.00	\$ 15,000.00
			Sub-Total	\$ 136,302.43
			Contingency @ 35%	\$ 47,705.85
			Sub-Total Constuction	\$ 184,008.28
			Contractor Bonds & Insurance @ 2.5%	\$ 4,600.21
			Contractor OH & Profit @ 20%	\$ 36,801.66
			TOTAL CONSTRUCTION	\$ 225,410.14
			Engineering, Legal, and Admin @18%	\$ 40,573.82
			TOTAL CONSTRUCTION AND ENGINEERING	\$ 265,983.96

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Mt Nebo Water Agency
Regional Water Supply Study
Proposed Infrastructure Engineer's Opinion of Probable Construction Costs

Description	Unit	Quantity	Unit Cost	Total Cost
Project 10 - Water Treatment Plant Pipe West				
Ex, Backfill, and Compaction	LF	119420	\$ 11.05	\$ 1,319,591.00
Shoring	WK	240	\$ 345.00	\$ 82,800.00
Imported Bedding & Pipe Zone Sand	CY	33172	\$ 33.50	\$ 1,111,269.44
16-inch Diameter PVC C905	LF	34220	\$ 52.47	\$ 1,795,523.40
20-inch Diameter PVC C905	LF	25700	\$ 108.37	\$ 2,785,006.20
30-inch Diameter PVC C905	LF	52300	\$ 120.48	\$ 6,301,208.60
36-inch Diameter PVC C905	LF	7200	\$ 163.34	\$ 1,176,033.60
3/4" x 8-inch deep UBC	SY	92882	\$ 10.00	\$ 928,822.22
4" Thick AC Pavement	SY	92882	\$ 62.00	\$ 5,758,697.78
HDD Highline Canal - 24" Casing	LF	140	\$ 500.00	\$ 70,000.00
HDD Highline Canal - 42" Casing	LF	325	\$ 700.00	\$ 227,500.00
HDD at 400 West	LF	50	\$ 500.00	\$ 25,000.00
HDD East of 100 East	LF	50	\$ 500.00	\$ 25,000.00
Minor Creek/Culvert Crossings	EA	5	\$ 2,500.00	\$ 12,500.00
Loop Goshen Res Outlet	LS	1	\$ 10,000.00	\$ 10,000.00
HDD Railroad Crossing	LF	200	\$ 650.00	\$ 130,000.00
HDD I-15 Crossing	LF	320	\$ 650.00	\$ 208,000.00
Minor Creek/Culvert Crossings	EA	1	\$ 2,500.00	\$ 2,500.00
Flow Meter/Connection Vaults	EA	3	\$ 150,000.00	\$ 450,000.00
SWPPP	LS	1	\$ 10,000.00	\$ 10,000.00
Traffic Control	LS	1	\$ 150,000.00	\$ 150,000.00
Materials Testing	LS	1	\$ 10,000.00	\$ 10,000.00
Mobilization	LS	1	\$ 800,000.00	\$ 800,000.00
			Sub-Total	\$ 23,389,452.24
			Contingency @ 35%	\$ 8,186,308.29
			Sub-Total Constuction	\$ 31,575,760.53
			Contractor Bonds & Insurance @ 2.5%	\$ 789,394.01
			Contractor OH & Profit @ 20%	\$ 6,315,152.11
			TOTAL CONSTRUCTION	\$ 38,680,306.65
			Engineering, Legal, and Admin @18%	\$ 6,962,455.20
			TOTAL CONSTRUCTION AND ENGINEERING	\$ 45,642,761.85

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**Mt Nebo Water Agency
Regional Water Supply Study
Proposed Infrastructure Engineer's Opinion of Probable Construction Costs**

Description	Unit	Quantity	Unit Cost	Total Cost
Project 11 - Water Treatment Plant Pipe North				
Ex, Backfill, and Compaction	LF	14000	\$ 11.05	\$ 154,700.00
Shoring	WK	30	\$ 345.00	\$ 10,350.00
Imported Bedding & Pipe Zone Sand	CY	3889	\$ 33.50	\$ 130,277.78
16-inch Diameter PVC C905	LF	14400	\$ 52.47	\$ 755,568.00
3/4" x 8-inch deep UBC	SY	10889	\$ 10.00	\$ 108,888.89
4" Thick AC Pavement	SY	2789	\$ 62.00	\$ 172,911.11
Minor Creek/Culvert Crossings	EA	1	\$ 2,500.00	\$ 2,500.00
Flow Meter/Connection Vaults	EA	1	\$ 150,000.00	\$ 150,000.00
SWPPP	LS	1	\$ 10,000.00	\$ 10,000.00
Traffic Control	LS	1	\$ 180,000.00	\$ 180,000.00
Materials Testing	LS	1	\$ 10,000.00	\$ 10,000.00
Mobilization	LS	1	\$ 1,000,000.00	\$ 1,000,000.00
			Sub-Total	\$ 2,685,195.78
			Contingency @ 35%	\$ 939,818.52
			Sub-Total Constuction	\$ 3,625,014.30
			Contractor Bonds & Insurance @ 2.5%	\$ 90,625.36
			Contractor OH & Profit @ 20%	\$ 725,002.86
			TOTAL CONSTRUCTION	\$ 4,440,642.52
			Engineering, Legal, and Admin @18%	\$ 799,315.65
			TOTAL CONSTRUCTION AND ENGINEERING	\$ 5,239,958.17

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**Mt Nebo Water Agency
Regional Water Supply Study
Proposed Infrastructure Engineer's Opinion of Probable Construction Costs**

Description	Unit	Quantity	Unit Cost	Total Cost
Goshen Valley k ‡ Pipeline				
36-inch Diameter Steel HP Pipeline	LF	5450	\$ 396.00	\$ 2,158,200.00
Pressure Reducing/Connection Vault	LS	1	\$ 450,000.00	\$ 450,000.00
Ex, Backfill, and Compaction	LF	41750	\$ 11.05	\$ 461,337.50
Shoring	WK	120	\$ 345.00	\$ 41,400.00
Imported Bedding & Pipezone Sand	CY	11597	\$ 33.50	\$ 388,506.94
42-inch HDPE DR 13.5 IPS PE 4710	LF	41750	\$ 274.60	\$ 11,464,550.00
3/4" x 8-inch deep UBC	SY	34792	\$ 10.00	\$ 347,916.67
4" Thich AC Pavement	SY	34792	\$ 62.00	\$ 2,157,083.33
HDD at 400 West	LF	50	\$ 1,000.00	\$ 50,000.00
HDD East of 100 East	LF	50	\$ 1,000.00	\$ 50,000.00
Minor Creek/Culvert Crossings	EA	3	\$ 2,500.00	\$ 7,500.00
SWPPP	LS	1	\$ 10,000.00	\$ 10,000.00
Traffic Control	LS	1	\$ 147,500.00	\$ 147,500.00
Materials Testing	LS	1	\$ 10,000.00	\$ 10,000.00
Mobilization	LS	1	\$ 1,000,000.00	\$ 1,000,000.00
			Sub-Total	\$ 18,743,994.44
			Contingency @ 35%	\$ 6,560,398.06
			Sub-Total Constuction	\$ 25,304,392.50
			Contractor Bonds & Insurance @ 2.5%	\$ 632,609.81
			Contractor OH & Profit @ 20%	\$ 5,060,878.50
			TOTAL CONSTRUCTION	\$ 30,997,880.81
			Engineering, Legal, and Admin @18%	\$ 5,579,618.55
			TOTAL CONSTRUCTION AND ENGINEERING	\$ 36,577,499.36

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Mt Nebo Water Agency
Regional Water Supply Study
Proposed Infrastructure Engineer's Opinion of Probable Construction Costs

Description	Unit	Quantity	Unit Cost	Total Cost
Spanish Fork Water Reuse Facilities				
Ex, Backfill, and Compaction	LF	1,240	\$ 11.05	\$ 13,702.00
Shoring	WK	3	\$ 345.00	\$ 1,035.00
Imported Bedding & Pipezone Sand	CY	344	\$ 33.50	\$ 11,538.89
12-inch Diameter PVC C900	LF	1,240	\$ 32.74	\$ 40,592.64
3/4" x 8-inch deep UBC	SY	964	\$ 10.00	\$ 9,644.44
4" Thich AC Pavement	SY	964	\$ 62.00	\$ 59,795.56
Secondary Water Pump Station	HP	375	\$ 2,000.00	\$ 750,000.00
Aqua-Aerobics AquaDisk	EA	2	\$ 390,000.00	\$ 780,000.00
Filter Building	SF	2,700	\$ 200.00	\$ 540,000.00
Misc Filter Piping	LS	1	\$ 250,000.00	\$ 250,000.00
Concrete Lined Storage Pond	ac-ft	10	\$ 125,000.00	\$ 1,250,000.00
SCADA and Electrical	LS	1	\$ 300,000.00	\$ 300,000.00
SWPPP	LS	1	\$ 5,000.00	\$ 5,000.00
Traffic Control	LS	1	\$ 7,500.00	\$ 7,500.00
Materials Testing	LS	1	\$ 7,500.00	\$ 7,500.00
Mobilization	LS	1	\$ 400,000.00	\$ 400,000.00
			Sub-Total	\$ 4,426,308.53
			Contingency @ 35%	\$ 1,549,207.99
			Sub-Total Constuction	\$ 5,975,516.51
			Contractor Bonds & Insurance @ 2.5%	\$ 149,387.91
			Contractor OH & Profit @ 20%	\$ 1,195,103.30
			TOTAL CONSTRUCTION	\$ 7,320,007.73
			Engineering, Legal, and Admin @18%	\$ 1,317,601.39
			TOTAL CONSTRUCTION AND ENGINEERING	\$ 8,637,609.12

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